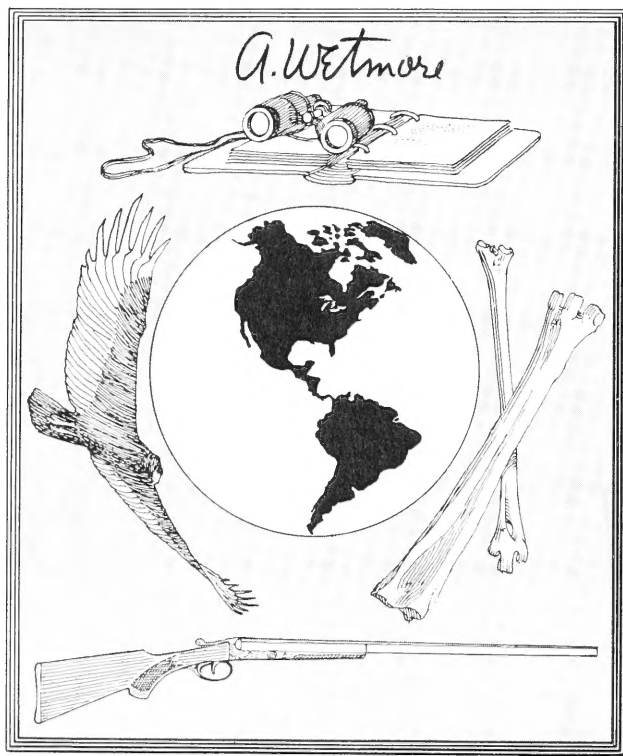


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Museum of Comparative Zoology
(Santa Barbara, Calif.)

The Journal of the
**MUSEUM OF
COMPARATIVE
O O L O G Y**



Santa Barbara, California

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THE JOURNAL

of the Museum of Comparative Oology

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Intended eventually to be issued as a Quarterly, but now put out as an ANNUAL

VOL. I

DOUBLE NUMBER

NOS. 1 and 2

A free copy of this issue will gladly be furnished upon request to any ornithologist or oologist, whether amateur or professional, or to any educational institution, museum or library, which may have been omitted from our mailing list. Additional copies 25 cents each.

MANUSCRIPTS intended for future publication, inquiries, suggestions or offers of exchange and co-operation should be addressed to the Director, Museum of Comparative Oology, Santa Barbara, California.

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The Museum of Comparative Oology

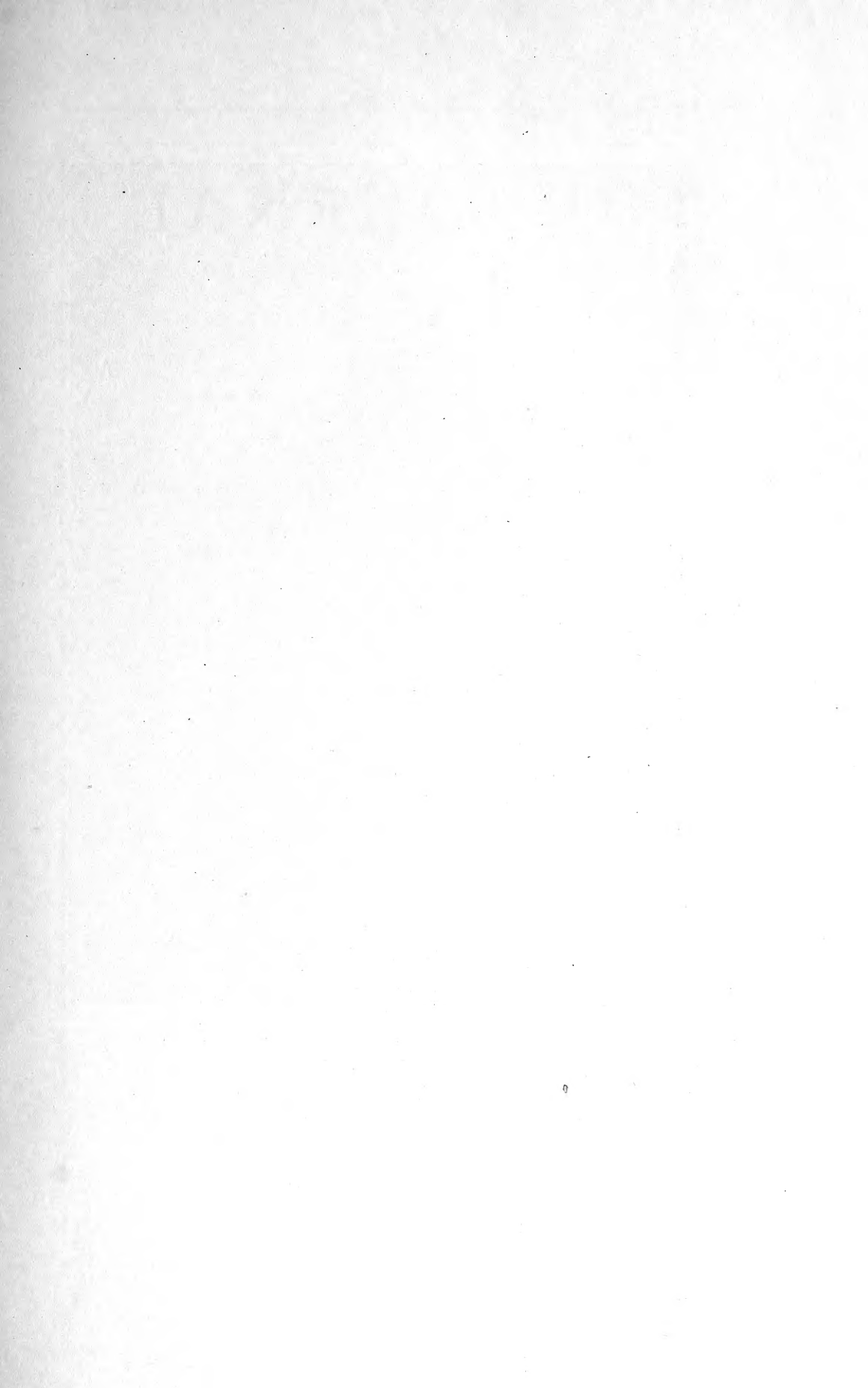
A chartered public institution, devoted to the study of the Birds
of the world, their nests and eggs

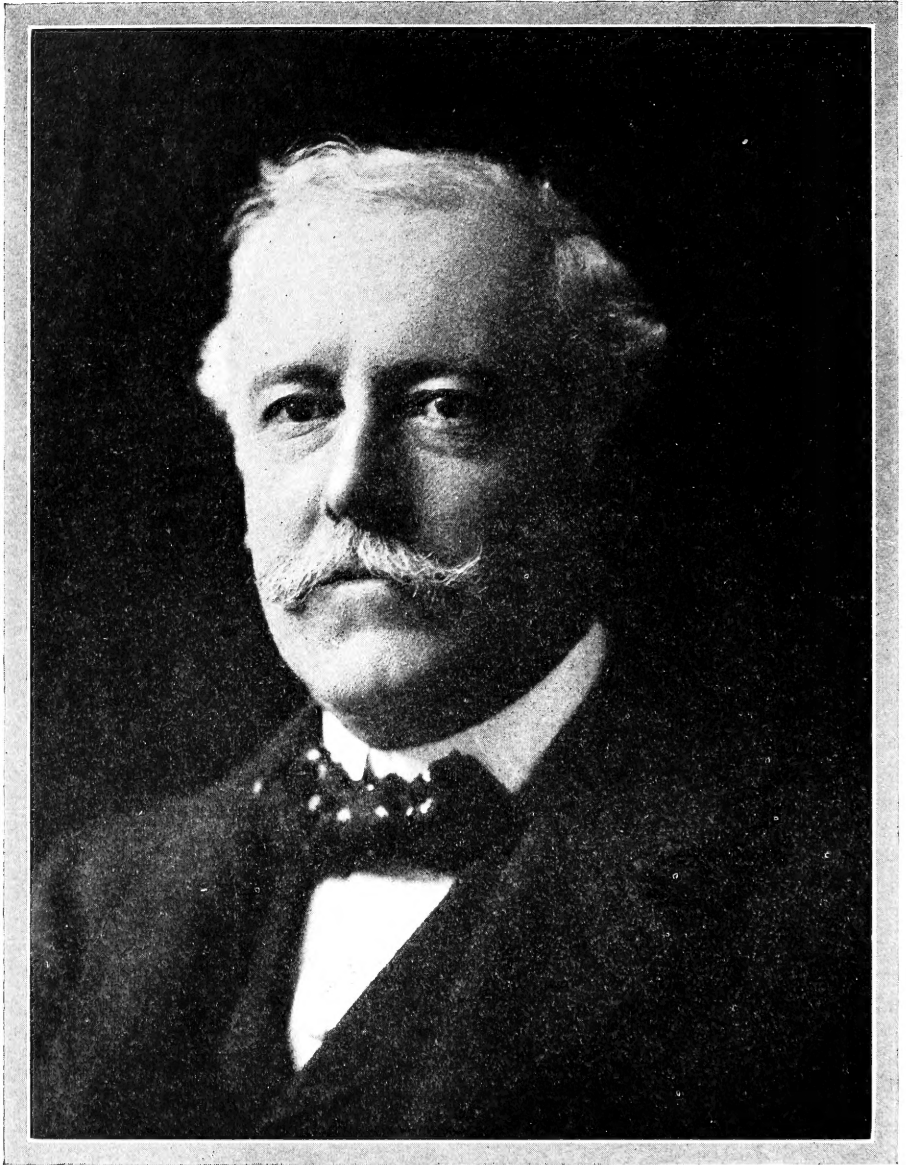
BOARD OF TRUSTEES

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Published March 26, 1919





ROWLAND GIBSON HAZARD

Trustee and Honorary Curator: *Abiit* January 23, 1918

To me he seemed a man of larger mould,
 A being thoughtfully ordained of fate
 To serve as pattern for the lesser great
 Who lacked his breeding, as, perchance, his gold.
 His endowments were assimilate, controlled,
 And ranked by spirit which deserved high state.
 I marvelled how he kept life's values straight,
 Saw freshly, lent a hand, was not cajoled.

I knew him, then, to whom life had been kind;
 And kinder he in stewardship's intent,
 The wisdom garnered in that sturdy mind
 He put to usury, as friendship lent
 Occasion; for his eager heart divined
 The swift rewards of love in service spent.
 W. L. D.

67 M... 5...

FOREWORD

This publication has a double purpose; first, to acquaint the public with the aims and worth of the institution whose name it bears; and, second, to prepare the way for a systematic discussion of the scope, methods, and progress of oölogical science. While this issue is chiefly given over to the first-named task, it has seemed worth while at the outset to christen it with a name which may be more fully justified at a later time. Though rating itself a "double number" of what may hopefully become a quarterly publication, the Journal will content itself this year, and possibly next, with an annual appearance. Because of its tentative character, therefore, we do not invite subscription to the Journal at this time; but we shall be glad to receive acknowledgments from all interested parties, and we will gladly mail copies, upon notification, to any oölogists, museum men, bird-lovers, or field-workers, who may have been unintentionally overlooked. We shall, however, reserve 400 copies as file-fillers, against the day of quarterly publication.

A "Journal" has come to be the accepted requirement of an institution. An idea, if it be formative and constructive, must have a printed exponent. It is the purpose of the **Journal of the Museum of Comparative Oölogy** to expound the ideas which lie behind this institution, and to awaken interest, enthusiasm, coöperation, loyalty, in the realization of these ideals. As such, this Journal is, frankly, the organ of a localized interest, answerable only to the Trustees of the M. C. O., and supported by them "whether the public will hear or whether it will forbear." But in a truer sense, this Journal intends to be an exponent of the cause of Science, and a medium for the exchange of ideas between those who love the pursuit of knowledge afield and who have found in the collecting of birds' eggs not only a pastime, but a door of access into the treasure-house of Nature.

Reading in the book of Nature is an easy and oftentimes a luxurious task. A thousand read where a dozen think; and of those who think there are fewer still who understand. It is not amiss, then, that one should come along and say, "Understandest thou what thou readest?" And the answer of the average bird-nester will be, if he is truthful, like that of the eunuch of Ethiopia, "How can I unless there be someone to guide me?" The M. C. O. was founded in the confidence that there are great truths to learn, laws to be pointed out in the humble realm of oölogy. It was founded in the belief that laws so discovered would throw a flood of light upon the trend of Life itself; and that the **Egg**, from which all life comes, if properly interrogated, will tell us something of Life's whence and, mayhap, of Life's whither. At any rate there is not in the entire realm of the bird-world a structure more significant nor a record more eloquent than that furnished by the painted oval which forms at once the fragile cradle and the enduring monument of the race.

Now it is true in one sense that collectors of birds' eggs are the standing joke of Christendom. At the mention of Oölogy, "Science" winks prodigiously and screens a grimace behind a discreet hand. In the adoption of this patronizing attitude toward collectors, Science has been partly right and hugely wrong. We ourselves have been like children who have built play-houses out of blocks covered over with cuneiform inscriptions. Our concern has been altogether with the heaping up of blocks, and not at all with the reading of inscriptions. Now the building of toy-houses is great sport and venerable. Science does well to look on indulgently. But it does not do well to pass on ignorant of the precious counters which laughing boys have played with. **It is time to read the inscriptions.** It is time for Science to take account of this cryptic language of nature, and to set about the translation of these records of the past into the language of the present, "language that may be understood of the people." When that is done, and it can be done, Science will conceive a new respect not alone for itself, but for those sportive youngsters, boys who never would grow up, whose instincts all along have spoken correctly, and whose accumulations will have made the maturer reflections, the visions, and the brilliant achievements of oölogical science possible.

The Museum of Comparative Oology of Santa Barbara has set itself the task of accumulating the phylogenetic evidence offered by the eggs of the birds of the world.

Its ambitions in this direction are boundless. Or at least they are measured by no limitations of questing time or housing space, but only by the numbers of the birds themselves. The institution realizes its responsibility for the safe-keeping of these world treasures as well as for making them available to the utmost for the uses of Science. The Journal of the Museum of Comparative Oology will endeavor to be at once the exponent of these ambitions and the pledge of their realization.

More specifically, the Journal intends, eventually, to report the activities of the Museum, to illustrate its aims and accomplishments, to advise its clientele of official actions and policies, to review and inculcate field methods and methods of museum practice, and to provide for the friends of the institution a convenient vehicle of communication. In the purpose of the official board, the Journal is intended only as the first and least pretentious of what may hopefully become four periodicals. To characterize this quartet without assigning names to its members, we should say that the Journal will be the administrative and personal record. This should be followed by a strictly scientific and technical quarterly. This, in turn, by a popular record, devoted to the field activities of the rising generation. And, lastly, we hope to propose a purely esthetic medium, an artistic and literary journal of ornithology. We are moved to share this rather premature confidence with our friends, in order that they may not expect too much of this unpretentious diary of progress, nor judge it by standards of completeness to which it can make no claims.

THE MUSEUM OF COMPARATIVE OOOLOGY WHO AND WHAT.

The world museum of birds' eggs was launched under a dual sponsorship, a social-civic, represented by Mr. Joel R. Fithian, who has faithfully served the institution for three years as its president; and the scientific, represented by William Leon Dawson, the ornithologist.

In response to their invitation, a carefully chosen circle of friends grouped themselves,—a circle which, as the event proved could be depended upon to appreciate an institution having a world outlook, while at the same time commending such an institution's appeal to local pride and its promise of local service. A charter was issued by the State of California on the 27th of January, 1916; and on the 31st of January the fifteen incorporators became a Board of Trustees, a self-governing, self-perpetuating body, pledged to the maintenance in Santa Barbara of an institution, whose every resource is dedicated to the furtherance of the cause of ornithological science, and, in particular, to the exploitation of that knowledge which may be acquired through a study of birds' eggs.

Of the personnel of the original Board something more may fittingly be said at another time. It will be enough for our present purpose simply to introduce the members by name (and upon the editor's sole responsibility), with a brief word of identification:

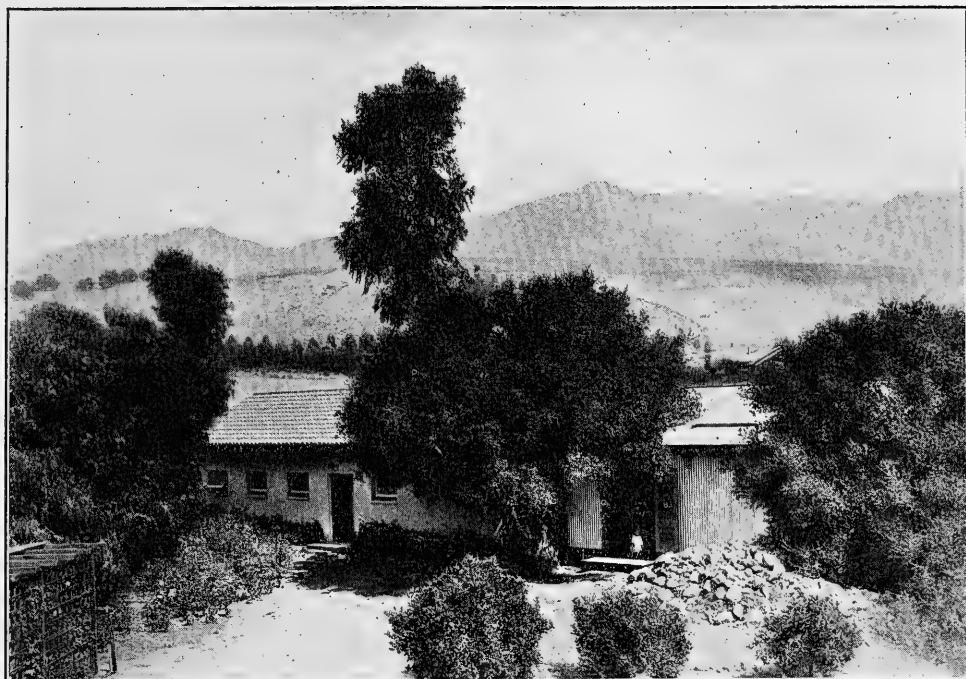
Mr. Joel Remington Fithian, President (retiring January 21, 1919, because of duties in France) is, by acclamation, Santa Barbara's social mentor and indefatigable host. His best-deserved title is "Father of the Grizzlies", and when you recall that "The Grizzlies" are the 144th Field Artillery, California's crack artillery regiment, you know the kind of man Mr. Fithian is.

Mr. William Norman Campbell, Vice-President, also a Director of the First National Bank of Santa Barbara, is another of Montecito's best-loved hosts, full of good works.

Mr. Clinton B. Hale, Vice-President, is a thorough sportsman, president of the Polo Club, and has backed the Y. M. C. A. to the limit in its French campaigns. The M. C. O. is only one of his many hobbies.

Mr. Edward Payson Ripley, Vice-President (now President), for twenty-one years President of the Santa Fé System, needs no introduction to the American public. Mr. Ripley's fortunate interest in our enterprise was probably due, at the outset, to the fact that Frank C. Willard, the well-known Arizona collector, is a brother of his son-in-law and right hand man, Nelson W. Willard.

William Leon Dawson, the Secretary (also the writer of these lines), did off "The Birds of Ohio" and "The Birds of Washington" some years ago, and has been grinding away on "The Birds of California" for eight years (now, thank good-



The Museum of Comparative Oology, Temporary Quarters. Main Building 20x46; the Annex 20x30.

ness! nearly complete). He has been an incorrigible collector of birds' eggs for thirty-five years, and has never missed a season.

Mr. George S. Edwards, our Treasurer, is (or was till a year ago) President of the Commercial Bank of Santa Barbara. He is the hardest working man and the hardest to work in the City.

Mr. Francis T. Underhill is Santa Barbara's leading architect and landscape artist, to whom we are looking for counsel in the execution of the M. C. O. building plans.

Mr. Clinton P. McAllaster is the manager and genial host of El Mirasol, one of Santa Barbara's luxurious hotels.

Mr. Fred H. Schauer was at the time of his election, Assistant Prosecuting Attorney of Santa Barbara County, and is now President of the Chamber of Commerce. He has looked after our legal affairs with ability, and we prize his coöperation.

Of the six ladies whose names originally appeared on our board, only one, Miss Ednah A. Rich (now Mrs. Lewis Kennedy Morse, of Boston) held official position, as President of the California State Normal School of Manual Arts and Home Economics; but we are under a special debt of gratitude to Miss Ellen S. Chamberlain, Mrs. James Hobart Moore, Mrs. Rebecca S. Campbell, Miss Marion A. Patrick, and Mrs. Etta A. Dawson for having lent their social graces and active coöperation to the infant institution. Several of these ladies have since retired in favor of more "scientific" but not more honored names.

Brief mention must also be made of five recent additions to our board, all now serving as trustees:

Miss Caroline Hazard, the honored ex-president of Wellesley College, accepted the place made vacant January 23, 1918, by the death of her brother, Rowland G. Hazard, who had been elected a trustee in 1917.

Rev. George Francis Weld, elected in January, 1919, is Dean of the Convocation of Santa Barbara, and Rector of All-Saints-by-the-Sea.

Mr. John Rothwell Pemberton, elected in 1919, is an oil expert and operator, living at Tulsa, Oklahoma. He had five years' experience as Assistant and Field Director on the Geological Survey of Argentina; and is an enthusiastic oölogist.

Mr. Cadwallader Washburn, of a well-known Minneapolis family, is a gifted

artist and traveler, who looks in regularly at Santa Barbara. He got back from Siam just in time to attend our last annual meeting.

Mr. Frank C. Willard, now engaged in business in New York, is a veteran collector of Arizona, whose ultimate ambition (this is *sub rosa*) is to get back into the game.

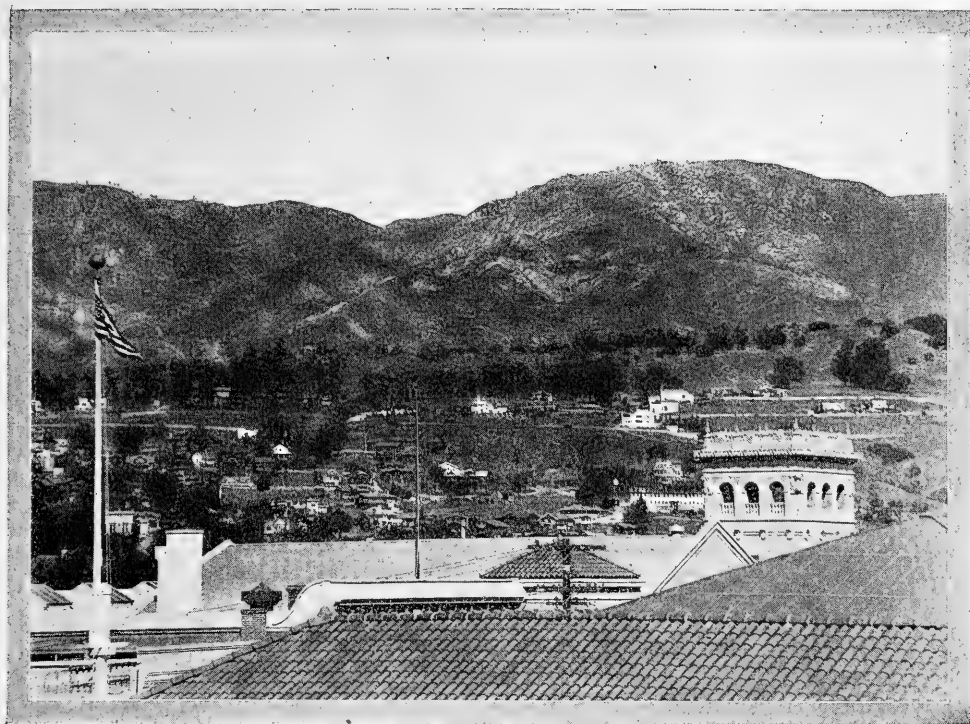
Now that we have been introduced, we will try to tell the reader what we are intending to do and why we wanted to meet you. At first glance it may seem to the reader that this is a Santa Barbara enterprise for Santa Barbarenos only. But if one thinks so, it is because he does not know Santa Barbara. Santa Barbara is not a selfishness, but a gift. We belong to the nation. Our profession is that of host. Or, if we exact some toll of our visitors, it is not that we may run away and spend it selfishly. Indeed, there is no other place to go. Our riches are the nation's riches, and if we are enriched in any fashion, it is that we may the better entertain. It is plain that those who compose the Board of Trustees are mindful, first of all, of presenting to their friends a novel and a profitable means of entertainment. The Museum of Comparative Oölogy is to be a "show place" for visitors from all parts of the world. Our first desire, therefore, is to afford pleasure to such as visit our shores; and the greatest compliment you can pay us is to visit the Museum at earliest convenience and command our services. This will "benefit the town", or not, according to whether you motor through or stop more or less expensively over night. That is not the point. Your visit will not only honor us; it will justify our right to hold down what we believe to be the most beautiful spot on earth. It will furnish us a sufficient excuse (without which no mortal can be happy) to think that, although we do not delve or spin, we are really of some use in the world.

We shall endeavor to serve you with distinction. We are going to show you things that you cannot see anywhere else. We are going to make your first visit as noteworthy and your return visit as speedy as we know how to. And we are not going to "pass the hat" among the guests. This is a **free** public museum, and all our services to the public are rendered gladly without admission fee or "remembrancer". It is our pleasure.

So much for the social side. But of course there is a serious side to our under-



Looking Toward the City from Proposed Building Site



View of the Riviera: Proposed Site of the Museum of Comparative Oology,
Looking North from the San Marcos Building

taking. We have set out to accomplish something that has never been done before. We have learned that a knowledge of birds' eggs is an almost unwielded key to some of the secrets of evolutionary science. We have learned that the egg is the stable element, the conservative factor, in a cycle of change, which elsewhere may move very rapidly. The egg is significant in every one of its physical aspects. It preserves inviolate the records of the past, records which elsewhere have been overlaid or obliterated. An egg is an archive of phylogenetic evidence. We propose to assemble the archives, to preserve them under ideal conditions, to study them, to decipher them, and from time to time to render an orderly account to the scientific world of our translations and findings.

This is a world problem and we require world material. The study of oölogy in America has hitherto been nearly confined to North American material, only a fragment, say a twentieth, of the whole. For this reason, in part, no great progress has been made. We find that a collection gains in scientific value as by a sort of geometrical progression when new and distant material is added to it. It is our intention, therefore, to provide space and suitable housing for the nests and eggs of the birds of all the world.

To this end we have in view the erection, upon a sloping hillside overlooking Santa Barbara, of a closely grouped series of buildings. These will be some twenty-two in number of two unit types, one 22x40, the other 32x54 feet in dimensions. All construction will be of reinforced concrete, fire-and-quake-proof, with top lighting and dry heating. Besides an administration hall, a library building, a lecture hall, and workrooms, space has been allowed for the housing of a representation of over 15,000 species of birds, reckoning for each bird a unit of space of not less than 2075 cubic inches.

The entire group of buildings proposed, with their furnishings, will cost in the neighborhood of \$200,000; and the completed whole, including maintenance, endowment, and research expeditions will require well over half a million dollars. Needless to say, this is the ultimate plan, a plan whose realization may require a period of

twenty-five or thirty years. While our building plans have been necessarily somewhat delayed by the war, we expect conditions to right themselves within a year or so; and are planning to start construction not later than March 1, 1921. The adoption of a consistent plan of unit construction imparts to the whole a very desirable flexibility. A modest beginning can be made at the favorable time, with two, or at most three, buildings, and the number of buildings can be increased from year to year as the requirements of increasing specimens demand.

For a somewhat fuller discussion of our aims and functions, the reader is referred to another article entitled "Museum Functions".

OUR LOCATION.

Men are born where God wills, but the elect escape to New York. 'So at least thinks the New Yorker. And there are those who take it for granted that anything worth while will report in sooner or later at some metropolis, and that in the meantime it is perfectly safe to neglect it. But an institution, unlike a man, may choose the place of its birth, and it may present sound reasons for its choice. The Museum of Comparative Oölogy did not just happen to start life in Santa Barbara; and it is cherishing no hopes of being "promoted" to Los Angeles, or San Francisco, or New York. The M. C. O. chose Santa Barbara for a birthplace, because it seemed to present definite advantages over any other place in the world. Perhaps it will be worth while to inquire what those advantages are.

The basic advantage is that of climate. The writer has never been in the Vale of Kashmir, nor yet in Riviera district of France; but those who have assure him that neither of those justly lauded paradises will compare with Santa Barbara in point of the year-round excellence of its climate. Within the memory of man its rigors have never crossed the danger line of destructive frost; while the ardors of its mid-summer are almost invariably veiled till early midday by a heavenly chiffon of kindly fog. Winds are infrequent and unfearful. Rains are usually ample and rarely obtrusive; while the rule of life is sunshine—sunshine everywhere. In winter, especially, the scent of unblighted lemons perfumes the air, while flowers of forty species and birds of thrice two-score species gladden a February which in other longitudes is a prey to ceaseless quarrels between rime and sleet.

Specifically, the climate of Santa Barbara favors the preservation of birds' eggs. The occasional dampness of the atmosphere is never protracted to the point of injury. The ravages of the fungus disease, *Penicillium*, which are despoiling many eastern collections of birds' eggs, are unknown in this section; and specimens which are found to be infected upon arrival soon lose their noxious growth. On the other hand, the dryness of our climate is not excessive, nor are those conditions present which in some other climates appear to "draw the strength" of an egg, no matter how well protected.

Santa Barbara, doubtless because of its climate and its sheltered position, is beloved of the birds. Although comparable in this respect to other coastal sections of California, its winter population of birds is probably in excess of any other region in the United States. For some eight year past, or since observations in this line have been carried out, Santa Barbara has held the leading position in respect to "one-party-lists" of birds reported in "Bird-Lore's" Christmas Census. On December 24, 1918, the writer identified 110 species of birds between dawn and dusk, all within twelve miles of Santa Barbara. We believe, therefore, that this is an ideal location for the study of bird life; and so for the establishment of a museum devoted solely to birds.

And the climate is responsible again for the steady influx of a selected population, the exact duplicate of which does not exist elsewhere. One must speak circum-spectly here. Not all the wealth nor all the culture of America is gathered in Santa Barbara during the winter season, but so much of both and that so well blended, that we are forced to recognize the unique opportunity and the unique responsibility which exists in this community with regard to any public service. Especially within the last few years our growth has been so rapid that we must now reckon our common fortune in billions, instead of millions. It is no longer possible to publish lists of notable visitors, nor indeed to keep track of all the gifted and honored, the world's men and women of affairs among us, who seek rest or congenial association, or perchance, a temporary oblivion.

Those who wonder that we did not launch this scientific enterprise in New York or Washington seem to be not sufficiently aware that New York and Boston and Philadelphia and Baltimore and Washington and Chicago and Denver and Seattle and San Francisco and Montreal have appointed this place as their official rendezvous, the place where they will spend their leisure time, their play-time, their time for communion with nature. It is true, we have forsaken the beaten path of museum enterprise, but we have done so only that we may keep pace with the trend of affairs, and that we may qualify for a large service.

Santa Barbara is not America alone; it is England and France and Italy. It is Spain and Mexico and Australia, with a touch of Siam. It is not, therefore, the casual meeting place of tourists, whether potentates, or ex-potentates, or school-ma'ams on vacation. It is the **home** of leisure and culture and conspicuous service. Its cosmopolitan population includes **les arrivées**. We submit that Santa Barbara will afford an ideal home for an institution which aspires to occupy fully a little niche in the world-wide scheme of things.

OUR PRESENT EQUIPMENT.

The Museum of Comparative Oölogy occupies as temporary quarters two buildings on grounds belonging to the Director, viz., "Los Colibris", in Mission Canyon. The main building is a hollow-tile and concrete structure, 20x46 in dimensions, with Mission tile roof and red cement floor. It is, roughly speaking, a Spanish dobe in



East Wall, Main Building, Showing 3-Unit Cases, Nos. IX and X.

style, and is practically fire-proof. Besides a main reception room, 20x30, this building contains a work-room, a dark-room, storage closets, etc. The "Annex", 20x30, painted to resemble its more permanent prototype, is of sheet iron, and contains, beside an exhibition room, another work-room and a partitioned space for nest storage.

Redwood cases to the number of twenty-four now completely occupy the wall space of the two main rooms. These represent a bulk of 1775 cubic feet, or 2020 drawer feet; for their allotment of space is divided into 473 drawers, all covered,

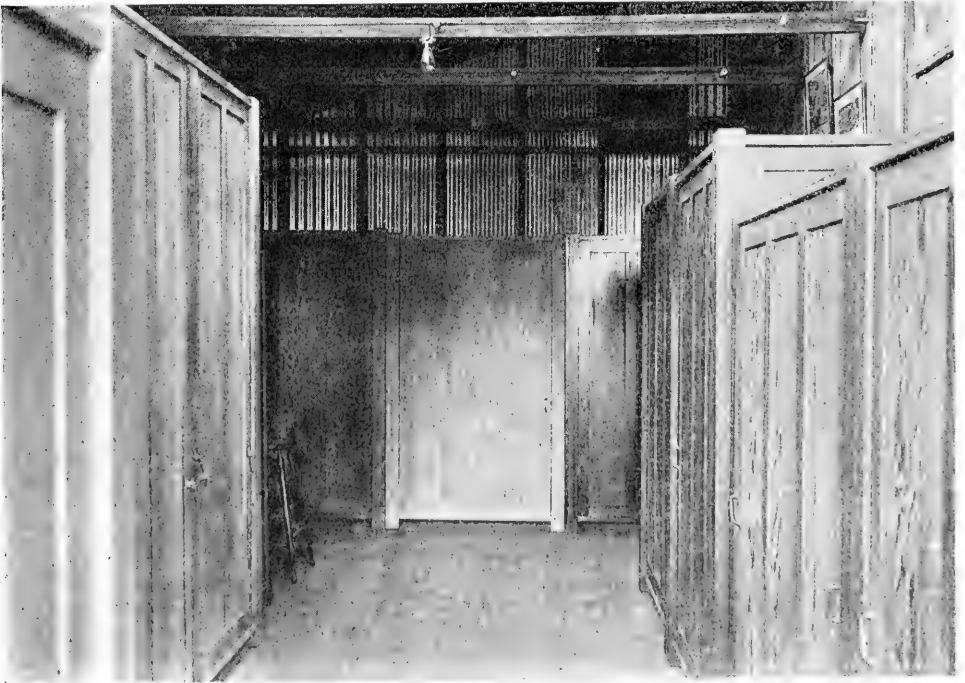
or intended to be covered, with glass. Each case is further protected by a removable drop front; and the drawers, save those which house the nests of Golden Eagles, Ravens, Western Redtails, etc., are easily removable.

Now that it has been decided to provide a separate building for the Hazard collection, the first, presumably, of the new series, we will have drawer space enough to house the normal accumulations of the next two years. This means, however, that we cannot at present indulge any more display cases, such as the one containing the group of Magpies' nests, nor, indeed, until we get into our new quarters.

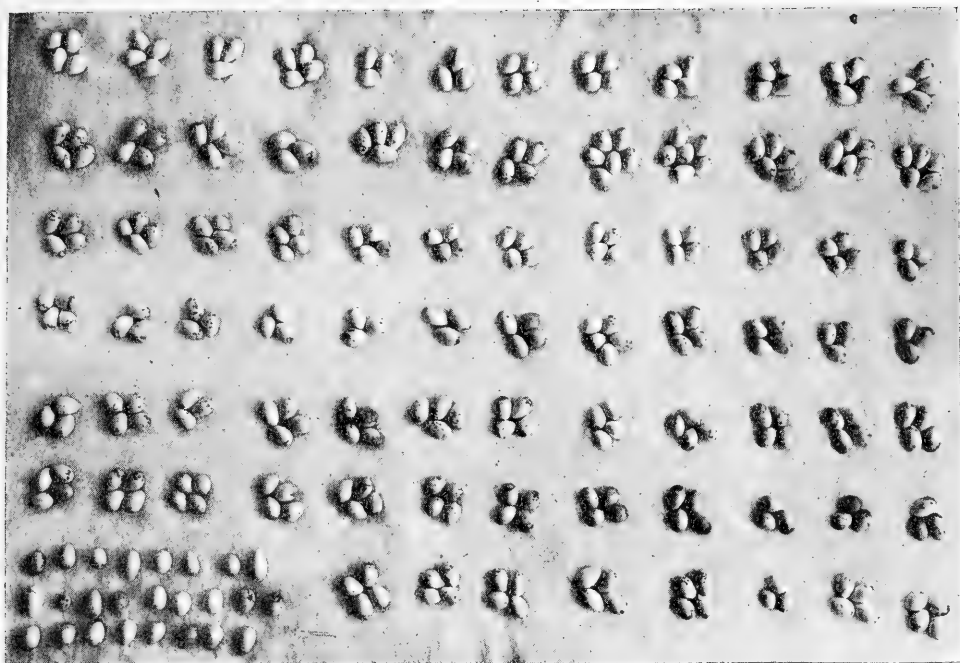
Until the completion of the index files, now under way, it will be impossible to report either the exact number of species represented in the M. C. O. collections, or the number of eggs—something over 1000 (of which 800 A. O. U.) of the former, and 20,000 of the latter. The number of nests, likewise, is beyond immediate estimate, but we believe that we already have more installed than any other collection (save, possibly, one) in America.

All seasonal and minor accessions are indexed as they come in, but the incorporation of the Dawson and the Willard collections has not yet been completed upon the files. This proves to be a huge undertaking, since each set of eggs must have three separate records, showing its whereabouts and standing. We believe our cataloging system to be the most complete ever installed in connection with an egg collection, and we shall take pleasure in explaining its workings in an early number of the *Journal*. Although the cataloging has been going forward for a year, it lacks yet some six months of completion.

The Museum of Comparative Oölogy is ostensibly only three years old, but because it has profited by some thirty-five years' experience in the person of the Director, its efforts have not been mere experimental outreachings. In the planning of cases and in the arrangement of material, especially, the management feels that it can without immodesty begin to exercise the teaching function. Each minutest detail of arrangement and economy in the Museum of Comparative Oölogy is to be studied and scrutinized and submitted to the most candid discussion. While we expect ourselves to learn a great deal in the process of further experimentation, we hope to be found helpful, or at least suggestive, to those who have not followed the game so long.



The Annex, Looking West. Giant Cases, 7-Unit (Cubic Yards) at Left; 3-Unit Cases in Center; New Type, 2½-Unit Cases, on Right.



Tricolored Redwing Series

THE ASSOCIATED BODIES

Coöperation the Key-note

In proposing the Museum of Comparative Oölogy, neither the founders nor the men and women associated with them as trustees, expected nor intended to do all the work themselves. What they did intend was to sound the call to coöperative effort in the establishment of a museum which should belong not alone nor chiefly to Santa Barbara, but to Science. In this they pledged the good name and the good faith of the community for the financial support of the young institution, but they expected—and experience has pleasantly justified this expectation—that the working ornithologists, and especially oölogists, of the world would adopt this institution as their own, that they would welcome its proffered services, that they would recognize its claim to leadership in its narrow chosen field, and that they would endow it with material culled from a thousand shores.

In sounding this call to coöperation, the Trustees of the Museum of Comparative Oölogy are acting not only in good faith, but in supreme confidence that museum material so gathered, and housed according to plans laid out at the time of foundation, can be administered to the greatest good of oölogical science. This institution, then, is dedicated to the public; it is freely administered for the good of Science; and it invites coöperation of every kind and degree of responsibility. In inviting favors the museum also offers honors, and it is forming by means of these reciprocal benefits a group of associated bodies, dedicated alike to the service of science, to the upbuilding of the institution, and to the prosecution of personal ends which are at once joyous and profitable.

An Elaborate System

To achieve the ends of coöperation an elaborate and far-reaching system has been devised. It is the province of this article to set forth, briefly, the conditions and claims and benefits of each associated body or group of the Museum's well-wishers, and to invite the fullest coöperation along these lines. First, after the Trustees themselves, who alone constitute the legally responsible administrative and controlling body, we have the

Board of Visitors.

This body, selected by the Trustees and serving by consent, is purely honorary, with moral and social, rather than legal and financial, responsibilities. According to the by-laws, "the Board of Visitors shall not exceed sixty in number, of whom ten shall be resident in Santa Barbara for at least part of the year. These shall, upon recommendation of the Director, be elected by the Trustees from among notable scientists, oölogists, educators, and persons of affairs, to act in an advisory capacity to the Trustees, and to bear the interests of the institution upon their hearts. To the members of this Board of Visitors shall be extended special courtesies, and the privilege of access to the collections at any reasonable hour". For those no longer active, or who drop out for any reason, the order of Honorary Visitors has been created. The present Board of Visitors comprises the following members:

Miss A. M. Alexander	A. B. Howell	O. P. Silliman
Dr. William Frederick Badè	Thomas H. Jackson	Prof. John O. Snyder
R. Magoon Barnes	J. Warren Jacobs	Harry S. Swarth
A. C. Bent	Dr. Lynds Jones	Percy A. Taverner
Dr. W. H. Bergtold	Dr. David Starr Jordan	Col. John E. Thayer
J. H. Bowles	J. Eugene Law	W. E. Clyde Todd
Rev. William A. Brewer	Joseph Mailliard	Dr. Rav Lyman Wilbur
Major Allan Brooks	G. Freaun Morcom	Frank C. Willard
Dr. Harold C. Bryant	Mrs. Harriet W. Myers	George Willett
H. W. Carriger	Joseph Parker Norris, Jr.	Miss Charlotte Bowditch
W. Lee Chambers	T. Gilbert Pearson	Rev. Dr. Charles E. Deuel
John Lewis Childs	J. R. Pemberton	Rev. G. P. Goll
E. J. Court	E. A. Price	Miss Gretchen Libby
William H. Crocker	Milton S. Ray	A. C. Olney
Donald R. Dickey	Dr. T. W. Richards	A. P. Redington
Dr. B. W. Evermann	Prof. Robert Ridgway	Col. Willis M. Slosson
W. L. Finley	Miss Ellen B. Scripps	E. S. Spaulding
Dr. W. K. Fisher	Clarence S. Sharp	A. H. Vilas
Dr. Joseph Grinnell	Miss Althea R. Sherman	Miss Donna I. Youmans
O. W. Howard	Dr. Robert W. Shufeldt	

Fellows.

This is a permanent order of leading importance, though undefined functions. Its activities, naturally, depend upon the Fellows themselves. "Election to this order shall be only by majority vote of the full Board of Trustees, and membership shall be confined to those who bestow upon the institution their entire life collection, whether of birds' eggs, skins, or nests (provided the same have a value of not less than one thousand dollars), or who, being duly recognized and qualified scientists, have performed for the Museum some other distinguished service. Members of this order shall receive every privilege and courtesy within the command of the institution".

Patrons.

This is the financially sustaining order of the institution, and comprises those who donate the sum of one hundred dollars or more at any one time to the support of the institution. As matter of fact, many of our patrons contribute sums in excess of this amount yearly, and expect to do so until the future of the institution is fully provided for by endowment. Of course the Patrons enjoy "all the privileges". We count ourselves fortunate in having so many and such representative names upon the list; but we expect immediately to double the number, "now that the war is over". Our Patrons include:

E. P. Ripley	Fred H. Schauer
Miss Ellen S. Chamberlain	William F. Dreer
William Norman Campbell	H. G. Chase
Joel Remington Fithian	Fred Harvey
Clinton B. Hale	Miss Caroline Hazard
Mrs. Lora J. Moore	Joseph G. Coleman, Jr.
Seth A. Keeney	H. C. Chatfield-Taylor
Rowland G. Hazard (deceased)	Theodore Irwin
Mrs. Charles S. Dennison	Alfred Baker
Milo M. Potter	Mrs. Mary P. B. Hazard
Clinton P. McAllaster	

The order of Patrons is pledged also to develop the social life of the institution, and to present its claims before the distinguished visitors who throng our gates. This is, naturally, a matter of chiefly local moment, but it may give assurance to our distant friends as well, that the light of the M. C. O. is not to be hidden under a bushel.

Members.

Three orders, all recently established, give promise of great usefulness, as they mark the serious assumption of the teaching functions promised by the institution.

Members pay dues of five dollars a year, and receive, besides all the publications of the institution, special instruction afield and the privilege of monthly study meetings at the museum. The fee covers also an annual subscription to "The Condor", the official organ of the Cooper Ornithological Club, because we feel that it is desirable to associate ourselves in effect with this earnest body of workers. Members may nominate one representative annually for the Board of Trustees, and in general they are understood to be an auxiliary body, devoted in every way to the furtherance of the aims of the institution. Membership is naturally, but not necessarily, limited to the residents of Santa Barbara and Montecito, and admission is by request and recommendation.

Double Members pay an annual fee of ten dollars, and are entitled to bring a friend, usually an out-of-town guest, to share all the privileges enjoyed by Members.

Sustaining Members comprise business and professional men and women who wish to support the institution in a still more responsible fashion. Each Sustaining Member pays twenty-five dollars a year and is entitled to six membership privileges, *en bloc*, for his family or designated friends.

Turning now to the larger scientific and contributing clientele, we have, again, a minute gradation of orders. Leading this list are the

Patron Collectors.

This group comprises such active and qualified oölogical collectors as are willing to donate all, or not less than one-half of their annual take to the M. C. O. Members of this body are approved by the Director, and are entitled to all the privileges accorded to Patrons and Visitors. A great many collectors are coming to realize the futility of private hoarding. Lack of time and lack of cabinet space restrain many whose interests, nevertheless, lie strongly afield. Most of all, lack of interest or sympathy on the part of immediate friends discourages many who would be glad to collect if they felt that their work would be appreciated,—if it could be turned to human account. We welcome such to our ranks, because we are in a position to supply just what they lack, laboratory facilities, cabinet space, appreciation, and human use. The number, therefore, who are collecting, chiefly or exclusively, for us, is steadily increasing. This is practical coöperation, a pooling of interests; and it will surely result in a collection which will be a credit and a satisfaction to all who participate in its formation. Our **Patron Collectors** are an honored body, and the institution belongs in a very real sense to them.

Field Members.

This class comprises all those who make regular annual contributions of material of value to the Museum. We are glad to have collectors associate themselves with us in any degree, for we find that their interest, and "returns of satisfaction" increase in proportion as they make common cause with us.

Exchange Collectors.

Such active field collectors of approved qualifications as are willing to establish preferential exchange relations with the Museum of Comparative Oölogy are designated Exchange Collectors. Many collectors insist upon maintaining their private cabinets, and they devote the duplicate material secured by field work to the upbuilding of their collections through exchange. We are glad to help all serious and responsible collectors in this fashion. A wealth of duplicate material at command enables

us to perform a considerable service for such collectors, and in return we have no hesitation in asking **first choice** of their material. We are especially anxious to build up series showing variations. Many of our exchange members, therefore, are willing to submit their series of a given species for our selection (and return of material not required), in return for choice material new to their collections. In this way both parties to the transaction are benefited, and our series, which are administered for the common good, are constantly growing in value.

Corresponding Members

This designation is meant to include all ornithologists, oölogists, directors and curators of museums, and collectors of note, whether home or foreign, who are willing to coöperate in any material way, or to further the cause of the M. C. O. The number of our correspondents is already very gratifying, and it is the specific purpose of this booklet to increase this number greatly. "Hands across the seas" is the order of the day, and we are just as ready to render any assistance within our power as we are to receive favors.

Authorized Collectors

This class comprises those whom the Museum subsidizes or aids in any material way in prosecuting field work, or in collecting for the Museum of Comparative Oölogy. Only those who are known to the Museum management personally are employed in this capacity, and for such the institution stands sponsor, both as to good faith in the identification of specimens, and as to observance of regulations, both State and Federal.

Lastly, all others who in any other way contribute acceptable material, or render valued service to the Museum of Comparative Oölogy, are recognized as **Contributors**, and as such are tendered thanks in the name of the Trustees.

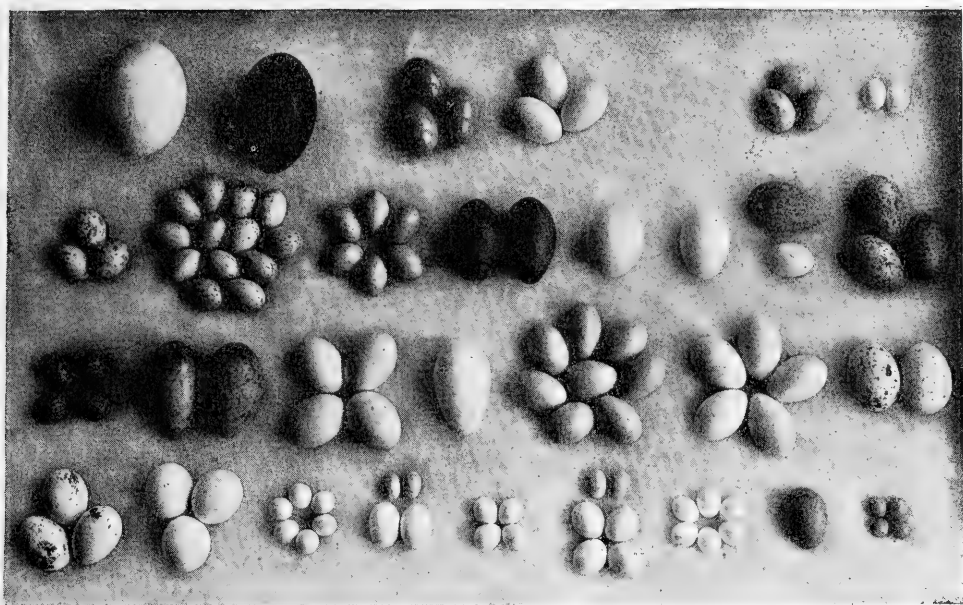
It is not to be supposed from this rather imposing array of named orders, that all groups are working at full capacity. All, nevertheless, are organized and are in active operation. It is the special purpose of this presentation that those who read these words and are in any way interested in the advancement of oölogical science may each make personal selection of the class which appeals to him, and either seek affiliation directly, or else open correspondence which may lead to some choice of work and honors. We invite coöperation of every conceivable degree, and would rejoice to make the entire scientific world partners in interest in this public-spirited effort. We are building an oölogical treasure-house, and the treasure is **yours**, to be administered for the common good.

MUSEUM FUNCTIONS

A DECLARATION OF POLICY

Modern museum practice rests on service. A three-fold task, therefore, confronts every museum. In order that it may serve, it must get and keep and use the material belonging to its appointed field. This is true of all conceivable institutions entitled to the name museum, whether they be custodians of art, history, literature, science, or commerce. But although the task is one in this sense, the changing values given to its three-fold aspects constitute the highest grounds of difference between one institution and another. These and the subject matter itself make the museum individual. If the institution is to be understood, therefore, it is not sufficient to name the field of its activities. Its methods, its reactions, its purposes, must be further defined. And when we attempt so to define them, we shall find that one function flows into another, and that the exercise of each presupposes and depends upon the others.

The Museum of Comparative Oölogy, then, has for its first task the acquisition of material. It must secure as soon as possible and as easily as possible a complete representation of the birds of the world together with their nests and eggs. Or perhaps it would be better to say, it must secure the eggs of the birds of the world, together with as many nests and skins as are necessary to enable the eggs to tell their full story. For the first purpose of the museum, regarded as a repository, is to husband the testimony of the egg.



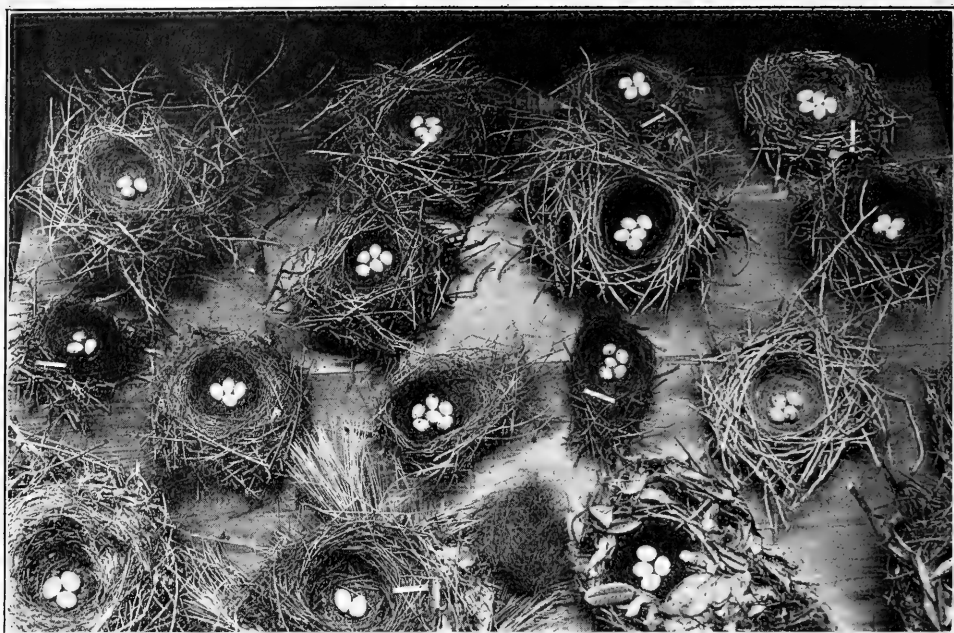
The Ordinal Drawer, Showing Eggs of 30 Living Orders. Case IX, Drawer 8, Main Building

The phrase "complete representation" requires special emphasis. In a field embracing, say, twenty thousand natural species, it is idle to speak of comparison or a science of comparisons before the bulk of available material has been assembled. Exceptions in nature do not prove rules, they overthrow them, and set up others more comprehensive. Our task is not done, nor can oölogy speak with final authority, until all the evidence has been assembled.

"Complete representation" also means a great deal more than the securing of a single example of the eggs of each bird species. Variation in nature, its presence or absence, its range within the limits of a species, and, above all, its causes,—these are problems to the solution of which comparative oölogy especially addresses itself. A complete representation, therefore, of variable material is an impossible ideal, for it expresses totality. We should rather say a sufficient representation; and such sufficiency will depend entirely upon the degree of variability exhibited in the case of each species. Mourning Doves' eggs are pure white, without deviation in color; and a dozen sets showing variation in shape and size will be deemed sufficient material, probably for all time. California Jays' eggs, on the other hand, are highly variable in color, and to a series of forty sets showing the range of this variation, may possibly be added a grouping of forty series from as many localities, to establish whether or not the degree and quality of variation is dependent upon local conditions. This is a large and, fortunately, exceptional order.

On the other hand, it will never be our policy to acquire, or having acquired, to keep, mere quantities of material. We are after the **significant** only. Every set of eggs, every nest, every bird-skin retained by the Museum of Comparative Oölogy must have a meaning, a niche, a place of its own. It must be significantly or justifiably different from any other object on hand, or else we shall plan to pass it on. Judged by current museum practice, this is a severe rule and one difficult of application. Many museums hoard all they get, irrespective of value, and to present to such institutions a series of duplicates is to inter them for all time. Such practice is abhorrent to us as being both selfish and witless. Other institutions may need these duplicates, and might exchange valuable and significant material for them.

But great caution is necessary here, caution and sound judgment. Some series of eggs are valuable as **establishing uniformity**. We have a drawer of twenty sets of Santa Cruz Island Jays' eggs, which we prize precisely because they do **not** vary. They are straight run, and serve to prove close stock, or inbreeding, in the case of the Santa Cruz Island Jay. But such a demonstration would be unnecessary in the case of the



The Jay Drawer. Case XII, Drawer 24, The Annex

Mourning Dove. Therefore, if some patron were to present us with forty sets of eggs of the Mourning Dove, we should ask permission to select six or eight significant sets and to exchange or donate the remainder. But if some one gave us forty sets of Eagles' eggs, we should expect to find twenty significant sets among them; or perhaps the entire lot would be significant, because of localization, or of serial continuity of parentage.

This is an important point we are discussing, and our friends have a right to demand an exact accounting. While the M. C. O. is constantly offering material in exchange, it has certain rules of procedure which it must abide by. Thus, no eggs will be exchanged unless there are two average examples (sets) left on hand. No series will be broken into; and, in general, no significant eggs will be spared, however large our stock—significant, that is, for us.

Our next task is the acquisition of birds' nests, nests of every species, nests with the bloom on, nests in series. For, again, we must study all significant material, and determine, so far as possible, the range of variation in habit, instinct, or taste. In some instances we may be able to trace the evolution of an esthetic sense. This too is a large order, but its execution is of the very essence of our plan. So far as limitations of space do impose restraints, even upon us, we expect to devote at least a drawer to a species. So far as we know, we are the only institution in existence which is undertaking such a large program of nest collecting, or which is attempting any systematic and thorough-going preservation of the nests of the birds of the world.

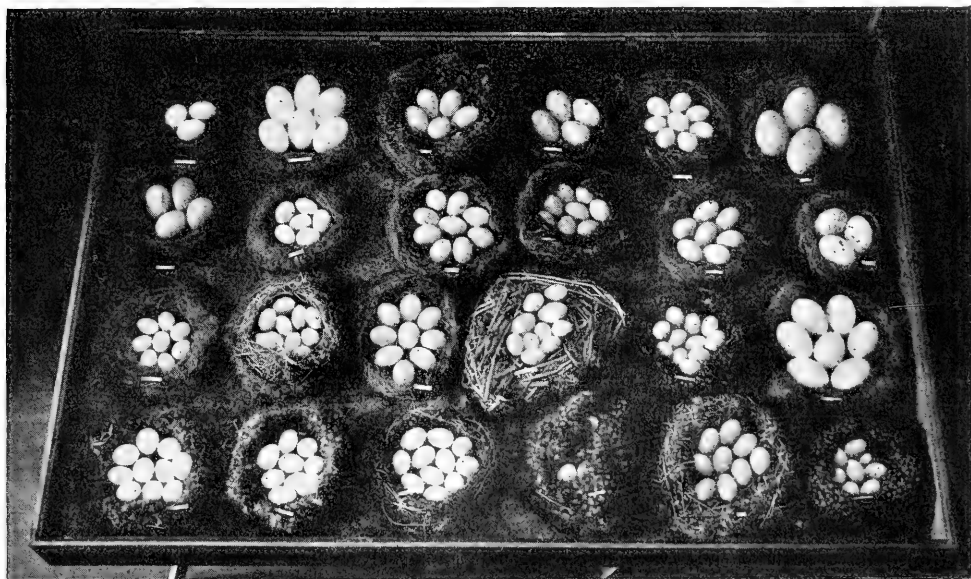
When it comes to the collecting of bird-skins, our ambitions are much more moderate. For the present, at least, we do not care to give space to bird-skins in series, nor to acquire a large number of any one species. We not only recognize the superior claims of other and older institutions which are specializing along these lines, but we desire to defer to them in regard to our own opportunities, and to retain only a few significant examples of each species. So far as we plan to specialize at all in this field, we shall confine our attention to neossology, or a study of nestlings and juvenile changes. In this we earnestly invite coöperation.

Having defined the matter of our acquisition, a word about the manner may be appropriate. A museum is an insatiable animal, and the M. C. O. is no exception. We want birds' eggs. We need them in our business, and we intend to get them by every means in our power short of fraud and theft. In the words of the immortal Shakespeare, if you have birds' eggs to shed, prepare to shed them now. We will covet them,

beg them, pray for them, or, if need be, exchange for them. Worst of all, if we have to, we will figure on buying them. But remember, please, if you think you have to have the money, that somebody has to dig it up. That isn't as easy as it looks, and it makes the upbuilding of a museum just three times more difficult. For somebody has to earn the money, and somebody has to beg it. True, Mr. Collector, you have done the work, but also you have had the fun. And when you have given the product of your wholesome activities afield to the Museum of Comparative Oölogy, you have the solid satisfaction of knowing that you have put it **where it will do the most good**. There is nothing to say beyond that, either by way of satisfaction or justification.

But that is only half, or less than half, of the problem of getting. The larger part of the material acquired by the M. C. O. must be secured through the efforts of its own workers afield. Field collecting is the first, if not the final, function of the M. C. O. Consider a moment what this means. It means, first of all, that the work we are intending to do has not been done and is not being done elsewhere. Putting false modesty aside, it means that unless we were specialists in this field, the task would not have been entrusted to us. It means that the vision has come to us because the thing is not being done quite to our satisfaction, or according to our standards, elsewhere. That is the basis of any forward-looking movement. And that is precisely the concession we are willing to make to the other fellow in his province. You want to build better bridges, or bigger ships, or better poems, or better laws? Good! Then that's your job, and we'll help. By the same token, we want to build up the best collection of birds' nests and the most significant collection of birds' eggs in the world. That's our job, and we've got to do it ourselves. We'll accept **any help we can get**, but we're not going to lie down and let the other fellow do the work. The collecting of nests uniquely beautiful, the preparation of birds' eggs which the other fellow may have overlooked, the observation of significant events afield, the interpretation of significant facts in the breeding cycle of birds, that is our continuing task. In its prosecution and in its supervision we expect to spend thousands, yes, tens of thousands of dollars, and we hope and expect to pass our work on to able and trained successors.

The care and keeping of a collection of birds' eggs imposes as severe exactions upon patience, ingenuity, and fidelity, as any task in natural science. In addition to the infinite detail of marking, cataloging and arranging, there are special exactions connected with the egg itself. Among these, the paramount requirement is preservation from light. The delicate tints of birds' eggs are susceptible to fading in every degree. A few hours exposure to the light will change green to blue, or pale blue to white; while continuous exposure will bleach any collection of eggs, no matter how strongly pigmented, to an inane whiteness. The first requirement, then, is cabinets from which



One of the Duck Drawers: Case XII, 21, Annex

light is completely excluded. Direct sunlight must never be permitted to fall upon an egg, even momentarily. Exposures to diffused light must be brief and calculated. Display collections, show-case material in the popular sense, are not to be thought of, unless one is prepared to sacrifice the material itself in a brief time.

This fundamental requirement, the briefest possible exposure to light, necessitates an instant departure from the ordinary conception of a museum as a place where things are placed on view. It profoundly modifies museum practice. An oölogical museum is not a place where the crowds can surge through and amuse themselves. All inspection by visitors at the M. C. O. must be **under guidance**. Parties and small groups, rather than crowds, must be welcomed at the museum doors, and each group allowed to enter must be provided with an escort or guide, who shall be able to open and display, and promptly close, all cabinets as the party moves forward.

In like manner, eggs must be preserved from dust, from displacement, and from the ravages of insects. This necessitates not only unusual precaution in cabinet building, but constant attention and supervision on the part of curators. There are, also, other, obscurer, factors connected with the preservation of eggs for a long period of years. There is a well recognized fungus enemy, *Penicillium*, to guard against. The effects of humidity, or the lack of it, heat or cold, or sudden changes of temperature—these require special study (although we may say at once that Santa Barbara's climate is demonstrably ideal in these respects).

The larger problems of preservation include those of adequate housing. Overcrowding is the bane of museums; and in many otherwise successful institutions much valuable material is relegated to cold storage for lack of room. The Museum of Comparative Oölogy expects, by means of its flexible unit system of construction, to escape these pangs. Having no obligation to provide shelter for undesirable material, it will scrap or exchange all excess; while the build-as-we-grow program will prevent unwelcome jams, with attendant confusion and loss of values.

But, after all, the real function which the public is interested in, is the function of use. What will be done with this special material when we get it? and for whom and for what is all this housing preparation?

The functions of use, in turn, are three-fold. There is the function of display or entertainment. There is the function of research or scientific contemplation. And there is the function of instruction or explanation. And, again, these three are one in effect, even if it pleases our present purpose to consider them separately. For what scientist would contemplate birds' eggs unless he were entertained thereby? And how should we instruct the young, unless we had first learned through research? Or, lastly, who would pretend to be entertained unless there was sound meat of wisdom in it all? unless display was orderly and meant something?

The first function, then, of the M. C. O. is entertainment. People are naturally interested in the ways of birds; and the products of avian activities, whether in nests or eggs, are of intrinsic interest to the public. There need be no argument for this. It is self-evidencing. If the painted oval of a thrasher's egg has attractiveness because of its beauty, eggs tinted, or clouded, or marbled with a thousand patterns of color are a thousand times more beautiful and interesting. And when to the interest of beauty is added that of ingenuity, of skill, of resource, as illustrated by a bird's nest, a multiplication of examples adds interest more than a thousand fold. It is manifestly worth while to exploit this natural, wholesome, human interest to the utmost, to provide for it a comprehensive, a monumental sphere of activity.

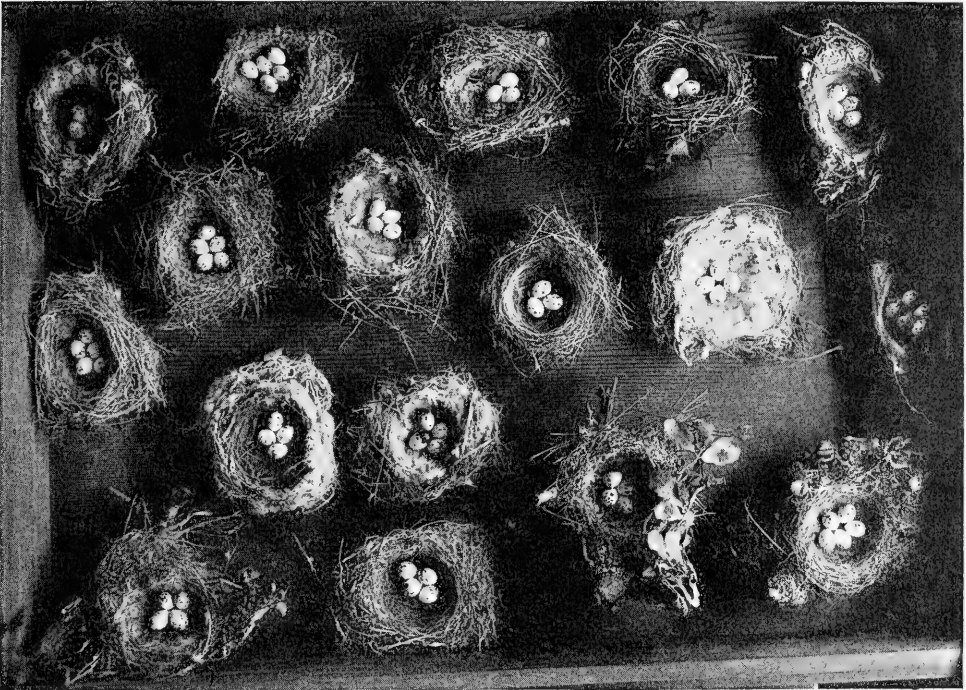
But add to this, again, discernment of design in nature,—a vindication of order where at first sight is caprice and chaos, and the pleasurable sensations of even the most casual visitor, are increased many fold. To realize this order is delightful. To follow nature's reasoning is pleasurable. To do this with the minimum of effort and the maximum of material is entertainment **par excellence**.

The M. C. O. intends, frankly, to become a show-place, a place of resort for pleasure-seekers, a quiet, wholesome influence in leisure lives, a pleasant resting place and a diversion for the overwrought. This is the primal function of any museum, and to fail here is to forfeit any right to go further.

But if we should stop here, we would not have gone very far. There would be little to differentiate the M. C. O. from a thousand other collections of birds' eggs. The serious function of the M. C. O. is research—research in a field boundless in opportunity, because the thing has never been attempted in a large, thoroughgoing fashion;

boundless in promise because oölogical investigation is destined to throw a powerful and revealing light upon the development of life itself.

Although a little aside from the main discussion of function, the writer cannot refrain from emphasizing this last point. There is more meat in it than has been supposed. Oölogy is not a frivolous super-refinement of science, a sort of attenuated imitation, existing by courtesy. It is basic and revealing. Let us see why this should be so. Life on any analysis you please is seen to exist in two phases, or to comprise fundamentally two lines of development, the nutritive and the reproductive. The nutritive individuates; it embodies itself; it exists for its own ends. Arising, indeed, from the reproductive stream, the individual also harbors that stream and transmits it, but it does not profoundly modify it any more than it completely exemplifies it. The reproductive stream, or the life current, does not fully express itself nor exhaust itself in the individual, for it has character and content of its own in addition. What its characteristics are and its tendencies we are left to conjecture. Its purpose we cannot



The Kingbird Drawer

at all discern, save, imperfectly, as it manifests itself in individuals. And so, because its substance is so plastic, so fluid, so subtle, we have learned little enough of the moving stream of life itself, little of the foundations of life, little of the mechanism of the creative idea. But in one realm of nature this moving plasma, this reproductive stream, has embodied itself, it has built a house in its own right. In the eggs of birds, and to a lesser degree in the eggs of reptiles, the moving stream has left records of its own nodes, of its own quasi-independent activities. To be sure, the individual parent furnishes the material, but it furnishes it only on demand and according to orders. The constructive design of an egg-shell belongs to the reproductive order, whose obscure workings we are endeavoring to trace. The life stream is the architect, and the bird is only the builder.

Can you not see how unique and challenging is the opportunity here afforded? The *elan vital* has exposed itself; the "divine urge" has put itself on record in a new fashion. The opportunity for fundamental research is priceless. How far the testimony of the egg keeps pace with that of the bird itself, is precisely the point of interest. That it sometimes measurably parallels it, we grant; that it usually lags behind, and so offers unimpeachable testimony to the character of older and otherwise forgotten rela-

tionships, is our profound conviction; that it occasionally outruns the development of the bird and points the way to new ends, as in the Passerine forms, is an hypothesis of attractive probability. But that we have here a quasi-independent line of evidence is undeniable. The relationships of birds can only be determined finally in the light of the egg; and so the assembling of the data and the reading of the story is a matter of legitimate interest, and one which, in the writer at least, awakens the profoundest enthusiasm.

And, of course, if we are able to correct our vision of the bird by the light of the egg, we have learned something momentous about Life itself. We shall not be able to employ this method of research in the realm of, say, mammalogy, but we may safely be guided by the conclusions already reached in a more favored realm. We shall have learned something of permanent value, something which is bound to modify our entire conception of the course of the living. This, I submit, is profoundly worth while, and this is the serious task of the Museum of Comparative Oölogy.

If we speak, lastly, of the teaching function of the M. C. O., we are only placing ourselves in line with the best of modern museum practice. And to this conception of the museum as a teaching institution, we heartily agree. It is not enough to point out that the material in the M. C. O. will be arranged and labelled with a view to its immediate teaching value. It is not enough, either, to point out that our system of providing personal conductors for all museum parties is in itself assurance of the exercise of the teaching function. A facile speaker is able to offer a good deal of information in the guise of entertainment in the course of an hour; and our experience shows that nine out of ten are impressed with the value and significance of what they see, as well as with its absorbing beauty.

It goes without saying that the presence of the museum confers special benefits upon the community of Santa Barbara. Work is carried on in coöperation with the public school system; and arrangements are being perfected whereby every boy and girl will have had systematic and progressive instruction in bird lore and in field methods by the time of graduation from the high school. In addition, the museum is the natural home and gathering place for Audubon Societies, bird-clubs, and various related activities. Upon the completion of a contemplated auditorium with projection facilities, we shall be able to extend our service to the community still further.

But our plans do not stop here. We owe a responsibility to the country at large and to Science. This responsibility we propose to meet by the progressive publication of several magazines, of which this double number of "The Journal of the Museum of Comparative Oölogy" is the forerunner. The broadest field of service will be sought through the medium of publication; and special papers will be published from time to time under the auspices of the institution, as the results of research appear to justify. In this way, especially, we hope to fulfil our three-fold task of entertaining, teaching, and conducting scientific inquiry. Such use we believe will justify an enormous accumulation and the most careful preservation of all significant material, whether of eggs, nests, or bird-skins, entrusted to the Museum of Comparative Oölogy.

THE SEASON OF 1916.

We plan to give in these pages a succinct account of the field research carried out each season by the M. C. O. staff or its regularly appointed collectors. Inasmuch, however, as three seasons have already passed without report, the earlier reviews must be correspondingly condensed.

The season of 1916 opened with the arrival in March of an assistant, A. G. Vrooman, of Santa Cruz, well known to oölogical fame as the discoverer and sole exploiter of the little colony of nesting Black Swifts, *Cypseloides* (nec *Nephæcetes*) *niger borealis*. "Bert" was willing to try his hand in "furrin parts," and after a few days spent at Santa Barbara getting into practice, we dispatched him to Santa Cruz Island on the 16th of March, together with a volunteer working on shares, Fred Truesdale, of Shandon.

The ensuing twelve days were profitable ones for the M. C. O., and we wish to take this occasion to thank the genial manager of the Santa Cruz Island Company, Mr. Arthur J. Caire, for his courtesies on this and subsequent occasions. Mr. and Mrs. Caire, visited the Museum on the 17th of March, 1917, and their esteemed promise of coöperation, together with the privileges of "the island," we count one of the valued assets of the institution.

The boys struck it just right this year, so far as Santa Cruz Island Jays were concerned. They secured thirty-three sets of this interesting bird, *Aphelocoma insularis*, more than were ever taken before, all told, and the series thus established we count so important in its phylogenetic bearings that it will form the subject of a special report.

Upon the return of the party, March 31st, Truesdale repaired to Shandon to take in the early crop of California Jays' nests, and to make preparations for an extended tour of eastern San Luis Obispo County, in which he was to join us. Vrooman hustled out the very next day and bagged a set, 1/4, of Duck Hawk, *Falco peregrinus anatum*, from a spot overlooking the La Cumbre trail, the first that had been taken in Santa Barbara County in a good many years.

On the 7th of April, the Director, accompanied by Mr. Vrooman, set out in the automobile, the "Jolly Ellen," for a reconnaissance of the "upper country." On the 9th we were joined by "Kelly" Truesdale at Shandon, and made camp that evening in Cumata Canyon in the heart of the old cattle country. Of the busy days that followed it is impossible to give a full account here. Suffice to say that we ran several hundred miles in exploring the inner coast range; and that we had experience of fifteen pairs of



Bringing in the Eagle's Nest: N 2 Golden Eagle, Now in Case XXIV, Drawer 5 M. C. O.

Prairie Falcons and nineteen of the Raven. This does not mean that we acquired that number of sets, for we lost several of the Falcons to heavy incubation; while the Ravens, long persecuted by "Kelly," had adopted every ruse "known to science" to escape the anticipated annual raid. Some of the black rascals had young, one pair as early as the 24th of March; while others, not a few, were just beginning to build; and some had deferred nesting outright.

Bert returns on the 21st of April to his home town, Santa Cruz, for two weeks' intensive work on Coast Jays (*Cyanocitta stelleri carbonacea*) and Point Pinos Juncoes (*Junco hyemalis pinosus*), securing several fine sets of each; while I return to Santa Barbara, a reluctant captive, to make certain financial collections. Oh, the wanton cruelty of the mid-season hold-up! The exquisite torture of watching a great man twiddle his thumbs or discuss the markets **while birds are nesting!** But the great man



Tricolored Blackbirds (*Agelaius tricolor*) in Nesting Swamps Near Los Banos, Cal.

"came across" at last (he was really very nice about it, you know), and work was resumed with a shout of relief which made the moon oscillate. Bert, meanwhile, had been forwarded to San Ardo on the Salinas, where he awaited my coming by auto. As an earnest of the good things ahead, I may mention that as I hove to for lunch beside a little stream in the Los Cruces country (on the 12th of May), I spied an Anna Hummer on her nest. Within one hour and within an area covered by a vigorous cast of a stone, I found nests occupied or building of our four local species of hummers—and made out a very decent meal besides.

At San Ardo we camped under the willows near the meandering Salinas. The birds hereabouts were commonplace, all save Costa Hummer (*Calypte costæ*) whose nest we took. But we were glad to get sets of the local Bewick Wren (*Thryomanes bewicki spilurus* or *drymoecus*), California Least Vireo (*Vireo belli pusillus*), and the San Francisco Towhee (*Pipilo maculatus falcifer*); not to mention a nest with four eggs of the Black-headed Grosbeak, which was absolutely buried in a mass of freshly plucked willow leaves.

We next visited the Pinnacles, in San Benito County; or, rather, we were halted for our nest work on the Monterey line immediately to the West. Western Gnatcatcher (3n/o)) were the leading feature in this open oak country, with such commonplaces as Ash-throated Flycatcher n/5 and Lawrence Goldfinch n/5. On the way out we flung down for a late camp by the roadside. A mist arising about midnight, I crawled out to pull the machine up under a spreading oak. The first pull of five or six feet didn't satisfy me, so I went around front to crank up again, when *pfwish* went a Valley Quail from my very feet. Stooping carefully, I felt about and clutched the warm eggs. There were a lot of them—twenty, I learned in the morning—and they look equally bewitching in a photograph and in the M. C. O. drawer.

Our next major step was at Dos Palos, in Merced County, in the heart of the overflowed country (although this section usually takes its name from Los Banos). We pitched camp, May 27th, by the roadside, in the shelter of the only row of eucalyptus trees in this section, a landmark for miles around. Here we spent seventeen busy days, days full of ornithological adventure and minor hardship withal, for the season was unusually backward, cold and windy. And when it did warm up, toward the end of our stay, the mosquitoes increased to the point of desperation. But the swamps were teeming with life, and a day spent wading, knee-deep, in water none too warm, is sheer joy if the birds are numerous enough.

And the birds were there! The Black-necked Stilts in one section found conditions so much to their liking that they were raising extra-large families, and we took four sets of five eggs each, a notable exception among Shore-birds, whose normal limit is four. Wilson Phalaropes were among those present, and we found and collected two nests of four eggs each, the southernmost breeding record, apparently, for this species in America. Black Terns were swarming, although they did not come to the climax of their nesting before our departure, June 6th. Ducks' nests of five species, viz., Cinnamon Teal, Pintail, Mallard, Redhead, and Fulvous Tree Duck, rewarded our quite incidental search. But the *piece de resistance* of our Los Banos trip was the nesting of the tricolored Blackbird, (*Agelaius tricolor*). Many days were spent in a systematic review of nesting conditions among these birds, chiefly in a colony estimated to contain upwards of twenty thousand pairs. Thirty-five hundred nests were examined, and from these a series of one hundred sets was chosen, which illustrate every phase from immaculate eggs to examples of freak pigmentation as heavy as that of *Xanthocephalus* or *Euphagus*. [This series as it now reposes in the M. C. O. is figured on page 11].

The monotony of life in the Los Banos country was further varied by the presence one night of a mysterious visitor, himself an expert oölogist. We were bunking as usual in the lee of a haystack some 200 yards from camp, so the visiting brother had things all to himself. Although unblown eggs, of which there were plenty at hand, seemed to be the visitor's preferred diet, he inserted a discriminating snout into such boxes of blown eggs as were not actually nailed or tied, and these he deftly smashed. Among the seventeen sets which the connoisseur—presumably, but not certainly, a skunk—destroyed, was 1/5 American Bittern, and the dearest "baby" runt Blackbird's egg that ever happened, about one-fourth normal size and handsomely marked. Naturally, there was no feast awaiting the visitor the following evening, although he explored the place carefully. The joke of it is, we could not have done a thing to the burglar in our tent, if we had caught him in *flagrante delictu*. Help yourself, birdie, but please don't fire!

The experience of the barren days ensuing, June 6-17, will have to be dignified as reconnaissance work. While it is true that a roving oölogist gathers few birds' eggs, it is more to the point to note the exceeding dryness of the spring of 1916, which had laid its blight upon the west central portion of California. In traveling from Los Banos to Eureka, in Humboldt County, we learned a good deal about the bird life of the country traversed, and we found a number of nests with young, but we took never an egg. At Elinor, on the Eel River, Bert made a Vaux Swift location, but a morning spent "chopping it out" of a redwood stub discovered only an *unfinished nest* at the bottom of the shaft and within two feet of the ground.

At Eureka we got in touch with C. I. Clay and John M. Davis, both excellent field men, and both of whom later entered the service of the M. C. O. By their advice we established our belated June camp near Trinidad Head, in the heart of the Vaux Swift country. Our time henceforth was divided between the search for Vaux Swifts among the stubs of the burned-over section, and the study of the sea-birds upon the rocky islets which lie off Trinidad Head. Upon the latter we found not only the usual run of Western Gulls, Shags, Tufted Puffins, Cassin Auklets and Beal's Petrels, which inhabit all such islands along this coast; but we found a tiny admixture of Fork-tailed Petrels (*Oceanodroma furcata*) breeding with *O. beali* on the Off-Trinidad Rock. This was an agreeable surprise, as it constitutes the southernmost breeding station of record for this species.

With the Vaux Swifts we did not fare so well. After incredible labors climbing stumps and finding nothing, we made a location in a giant stub near camp. This was a redwood "chimney" eighty feet high, devoid of limbs, eight feet in diameter at the base, and not materially less, or not less than six feet, at the point where a devastating fire, seven years before, had hollowed its broken top to an unknown depth. It was a difficult proposition, but by dint of half a day's work with the rope-and-cleat method, I scaled it; and in another half day, June 24th, had worked down on the inside of the congested barrel to find—another empty nest. Too early!

We certainly could not afford to spend the entire season waiting for a Swift (?) hen to lay her eggs; so we left Vaux's Slow to other hands and made our way across country to Red Bluff and Shasta. En route we encountered the "only heavy summer rainstorm known" in the northern Sacramento Valley. It rained two inches, according to report, on the first day of July, at Sacramento City, and six inches at Dunsmuir, in the Sacramento Canyon. This also meant a foot of new-fallen snow at timberline on Mt. Shasta, whither we were bound.



Mt. Shasta, from Lake Elaine

Leaving our machine at Sisson, after an exceptionally muddy trip, we outfitted for timberline, and arrived at noon, July 7th, after seeing one of our helpers, a young man of seventeen, nearly killed by a vicious horse. The animal threw his rider, dragged him a few rods by a clinging stirrup, then, finding himself free, proceeded to jump up and down stiff-legged, not less than four or five times, over the lad's prostrate form. Yet the young fellow escaped with only an ugly flesh wound on his arm! Half an hour later a pack-horse, tired of its job, proceeded to divest itself of the grub kits, and succeeded in planting a hoof accurately in each of four biscuit tins. The result was highly diverting, and we could enjoy it; for it might so easily have been the cameras instead.

Arrived at timberline, or at the upper edge of the somber belt of Shasta firs which girds the noble mountain in a belt some fifty miles in circumference, we found very little doing in the bird line. Careful investigation during succeeding days discovered only three species of birds breeding near the 8,000-foot level, which in the Sierras would have been teeming with life at this season. We settled down, therefore, to a close study of these three forms, and especially of the Townsend Solitaire, who was the **genius loci**. Of the Solitaire we found and took six nests with eggs, all literally among the snow-banks. Of the Wright Flycatcher we found two nests with eggs, one of which had been overwhelmed by the storm of the first instant. The other nest was placed in a tiny fir tree whose roots were covered by snow. The Western (?) Ruby-crowned Kinglet, which was the third member of the trio, kept to the treetops, where search was all but useless.

On the 18th of July we began the ascent of the mountain, which has a reputed altitude of 14,380 feet. At the 13,000-foot level Bert felt obliged to quit, and left me to finish alone, which I did in fine condition, by the help of the tea canteen and a three-ounce ration of rock candy.

The peak cluster proper, a serrated rock mass rising sharply above a blinding level of snow, presented on this occasion a curious, and possibly unique, spectacle. We had had a heavy rain at the lower levels two days before. At the level of the summit the cold breath of an east wind, contending steadily against the moisture-laden atmosphere from the Pacific, had caused its moisture to congeal successively in great horizontal icicles, or ice crystals, until the rocks were covered with a panoply of ice three or four feet in thickness and of diverse as well as striking beauty. Although limpid or glisten-

ing white in color, the corded ice crystals, in structure and proportions, were not unlike columnar basalt turned on edge. Altogether it was an inspiring sight, and one decidedly out of the ordinary. But of bird life at this exalted level there was never a sign. Neither *Leucosticte* nor *Pipit* nor any one of half a dozen others which one might have expected on a less isolated mountain mass. It was the official end of the season.

In presenting, thus, what may seem to some of his readers a sort of hardluck story of operations during 1916, the writer must remind them of several considerations by way of explanation. In the first place, the field work after June 6th was, frankly, a reconnaissance venture, undertaken chiefly in the interests of (and financed by) "The Birds of California" enterprise. We could have collected more eggs by sticking to almost any one given station. Secondly, by pursuing a prescribed course through a new and diversified country, especially in California, one is more likely to miss the season than to hit it in most places. Each locality is a law unto itself, and its peculiar conditions must be known in advance, if one is to expect the maximum of results. In the third place, 1916 was undoubtedly an off-season. Its extravagances and reservations were alike exaggerated. A freak season meteorologically means an off season oölogically.

But after all is said, there is no denying that Mother Nature is chary of her oölogical favors in California. We get "big stuff," romantic stuff, now and then; and always we have the thrill of high expectations as well as the reactions of hard work, but the daily returns do not foot up numerically as they do in an average Eastern section. In an unusual degree each species presents its own problems in the West, and the incidental returns from just being out-doors are comparatively few and not to be depended on. It is for this reason that exchange values assigned to most Western species are necessarily higher than the values placed on eggs of analogous Eastern species. And it is this that our Eastern friends are slow to understand, because they are working under very different conditions.

Yet we are not to be understood as either whining or apologizing. Nests and eggs of ninety-three species taken in a season is "no that bad"; while as to the precise number of sets taken, that is a matter which interests only our father confessor, The California State Fish and Game Commission. We are gloriously content.



A Group of Well-Collected Nests

HOW TO COLLECT AND PRESERVE BIRDS' NESTS

The greatest difficulty which the M. C. O. encounters in its endeavor to build up a representative collection of nests and eggs, is to secure **well collected** birds' nests. Collectors whose data are models of neatness and accuracy, will do up nests as though they were handfuls of grass plucked at random, and they will jam them into packing boxes without reference to any possible outlines which nature may have intended. Oölogists will putter for hours coaxing an embryo through a microscopic orifice, while a flawed hole will throw a veteran into spasms. But the same "oölogist" will tear a nest out of a thorn bush, heedless of the fact that the bush will claim the outside half of the structure for its own portion. Then he will crowd a fistful of cotton into the hollow, wrap the package in a piece of old newspaper, tie it with a piece of fish cord, and thrust the package into a side coat pocket, while he pursues his investigations in the jungle. If there is anything left at nightfall, it will make good stuffing for the camp cushion; and if it, the "nest," survives that service, it will be ready for transportation and display!

Pardon the writer's emotion. He has suffered immeasurably at the hands of those who collect birds' nests as school boys chop kindling, merely from a sense of duty.

Common sense would suggest that a bird's nest, if intended for study or exhibition purposes, should be preserved substantially as the bird made it. And if a kindly Providence has endowed the collector, also, with some little esthetic sense, he will realize that the design of nature cannot be improved upon, and he will exercise his ingenuity to retain, if possible, the authentic flavor, the **drollerie**, or the jauntiness, imparted by the feathered artists to her handiwork. At any rate, the difference between "just nests" and nests preserved with the bloom on, is the difference between Canal Street and Beacon Street, or, say, between pitching hay on the farm and a winning game at billiards.

For those who desire or intend to play the game, the following suggestions may be of service. In speaking of nests, we do not need to consider in this brief space the problems which arise in connection with very large structures, like Eagles' nests; nor exceptionally fragile ones, like Swifts' or Hummingbirds'. The habitual use of common-sense methods designed for the ordinary run of nests, will develop collectors' gumption, and will prepare the nest-hunter to meet cases with exceptional care. Indeed, given a reasonable degree of **respect** for a work of art upon which the birds have lavished the skill of ages, and a simple determination to land that structure in the museum with the least possible disturbance of its natural relations, success is automatic and inevitable.

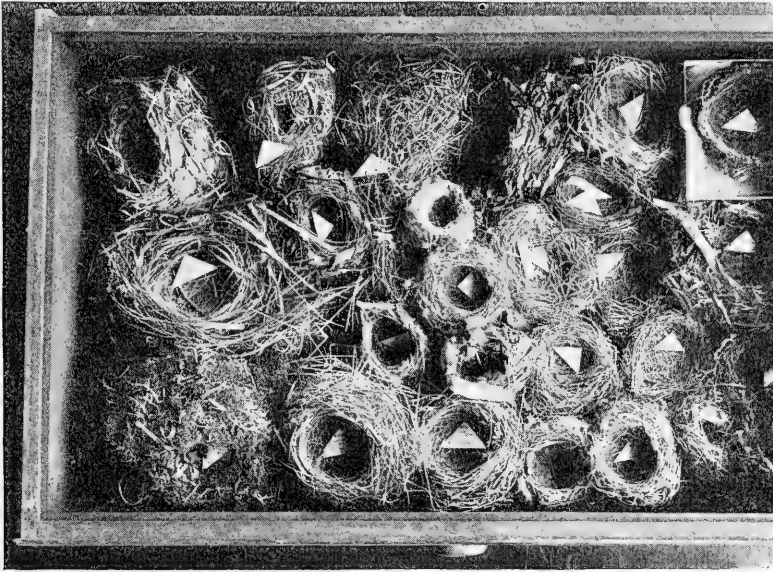
For ordinary collecting one requires the following tools and materials: First and foremost, tissue paper,—some very soft, and some as stiff as possible. The best quality of bleached grass tissue (difficult to obtain just now) is none too good; second, a pocketful of waste cotton; third, some string, a small ball of light wrapping twine preferred; fourth, a marking pencil. If to this a pocket rule be added, you will be equipped to take field measurements of dimensions, which are always preferable. For tools, I should put first a sharp pocket knife; or better, a small pair of rose clippers—ladies' clippers preferred. These clippers are invaluable for trimming the setting of the nest to satisfaction, and in clearing it of entangling twigs, vines, etc., so that it can be lifted clear without injury. Next, you will need some kind of a small saw, a pocket saw, a "key-hole" saw, or a Japanese tree saw. Third, if you are going after woodpeckers or chickadees—and you are likely to run across something of this sort which needs investigating almost anywhere—you will want a small pocket axe. Don't load down too heavily with this article. I have a little axe that weighs fourteen ounces, and I wouldn't take as many dollars for it. Lastly, if you like, provide yourself with a fish basket, or some sort of a convenient hamper to carry nests and tools in. This is not essential. I never bother with it myself. You can carry wrapped nests in your hand without particular inconvenience or fatigue. As the "bag" increases, you can wrap several together, or tie them in bundles with string, always taking care to leave a stout limb or base for a convenient handle.

This kit may sound ominous to the novice, but really it is not so at all. I carry my entire outfit in the pockets of a huntingcoat, hand-axe, saw, clippers, cotton and all, and grasp a good steel-shod "pike" (really an alpen-stock) in my hand besides. A pike is a good thing to interrogate tree-trunks, logs, and sundry fissures in cliffs.

Now that we are equipped, let us tackle a sample nest. Shall it be a Black-headed Grosbeak's, settled into a crotch of a young willow sapling? The first thing to do is to remove the eggs. Then, having marked them and wrapped them, and packed them securely in the collecting box, we are ready to collect the nest. First, write the name

of the species and the set mark and the date on a small square of stout tissue and drop it into the bottom of the nest. This is the "tell-tale," and you will live to bless the day when you established the habit of writing tell-tales, for the outside markings of the nest will wear off or tear off or bleach out—you'll never know how. Then take a generous square of soft tissue paper and make (with instant dexterity) a ball, or half-sphere, of waste cotton, leaving the tissue on the outside—this to stuff into the nesting hollow with as little disturbance of the nest lining as possible. This is the most important operation in nest collecting—and the easiest, although there is a knack to it. One compresses just enough cotton into the ball so that when released against the tissue paper, inside the nest, it will exert a gentle, firm pressure against all the sides. This will preserve through amazing vicissitudes the essential character of the nest, for it will give it resiliency, or resisting power, under the wrappings, and at the same time preserve its form. If it is inconvenient to insert this ball into the nest while it is *in situ*, wait till it is brought down; but if you do not insert it, cover the nest temporarily with a sheet of paper or with a handkerchief, so that any succeeding cutting or sawing operations may not leave unwelcome debris in the nest hollow.

Having filled or covered the nest, you are prepared to cut it down. Here is where art and gumption come in. **Don't tear the nest loose from its setting.** Preserve it in



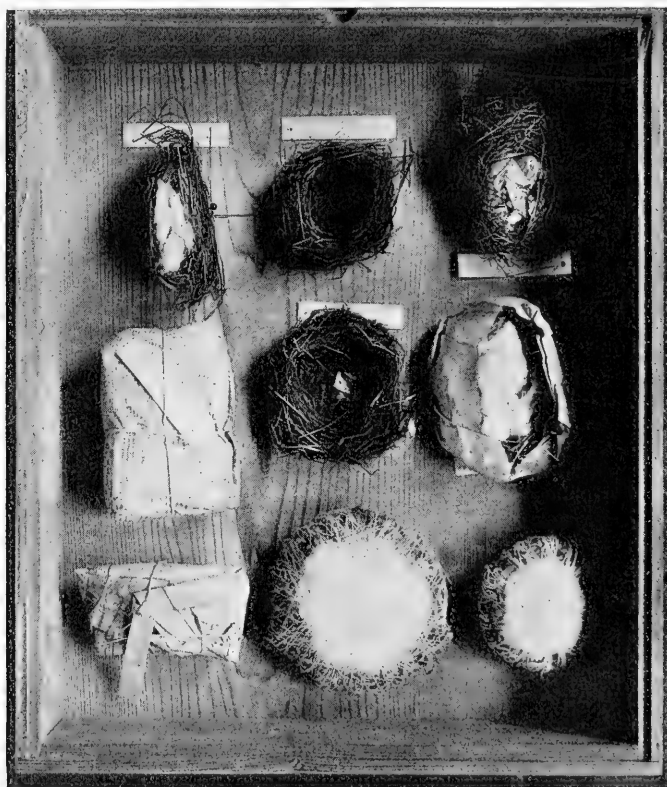
An Overcrowded Arrangement

its setting. To do this, the supporting branch, or stem, if not too large or too slightly connected with the nest, must be sawed free. Of course you cannot preserve the branches which rear themselves, it may be for many feet, above the nest. Snip them off at a point an inch or so above the brim of the nest. Preserve as far as possible the character of the immediate setting. If leaves overshadow the nest, cut them away, or twist them sharply to one side. A clear view of the eggs is usually a paramount consideration in the cabinet. But save enough leaves on the side limbs or supporting branches to tell the story. Cut away entangling vines, or foundation twigs of excessive length; but save just as much as possible of everything the bird put in or on or under that nest.

Now we are ready for the wrapping, and this operation is second in importance **only** to the stuffing. Place the nest, with the under support cut away to within an inch or two of the nest foundation proper, on a generous square of tissue paper. Draw the sides of the paper up snugly, but not enough to disarrange or break the protruding twigs. If the nest is a large one, "tack" this first sheet with a wrapping of string. Then with another sheet of tissue on top, reverse the process, i. e., drawing the edges of the sheet downward to meet under the bottom. Now wrap the whole generously, securely, but not too tightly with string. Now mark the package plainly with a soft pencil or a

pen, giving species, set mark, etc. You will be vexed if you have to open the package needlessly just to find out what is in it. Your nest is now ready for transportation, and it will stand any reasonable sort of abuse, short of compression in the packing box.

Ground nests and those whose sides are not self-supporting, require special consideration. In general, the accurately shaped nest-plug is the secret. If it is a Vesper Sparrow's nest, settled into the ground, plug it; then work about with the fingers between the lining and the earth. When you have worked under it, lift the whole structure clear, and wrap it in soft tissue paper, taking care to preserve the natural outlines. Upon unpacking, it is well to provide a light artificial support by wrapping it about gently and not too copiously with thread. In case of especially fragile nests, a light wrapping must be made afield. This may cover the hollow as well as its contained plug, but the final museum shroud must be confined to the sides of the nest. After the final wrapping is in place, the field cover may be dexterously snipped away and removed piecemeal.



How NOT to Do It

In case of flat, or slightly hollowed nests, like those of a grouse or a duck, the field plug, fully guarded by tissue paper, may form the core about which the walls are folded over for convenience in transportation. It is a simple matter to restore such a ball to the proportions of a shallow plate in the workroom, provided always that the outside portions of the mass have been held snugly in place by wrappings.

The secret of well preserved nests lies, first, in the use of the nest plug; then in the generous wrapping with tissue paper (**nothing** else is so good); and, lastly, in snug but not forced packing in the shipping case. A thousand cautions rise here out of experience, but they all resolve themselves into care and sense. With these you can provide for your museum, with slightest expense, objects of beauty, which will be a joy forever to you and all your friends.

The foregoing directions are simple, explicit and ample, and they are guaranteed to give correct results; but out of the fulness of an oppressed heart I venture to let out a final burst of

DONT'S.

Don't put cotton in direct contact with a nest. The nest will have cotton whiskers forever after if you do, and the patience of man does not suffice for the complete removal of the persnickity things.

Don't use harsh paper for nest filling. It cannot be made to conform to the rounded sides of the nest, and it will disarrange the delicate lining materials.

Don't leave the nest hollow without adequate filling. The jar of travel will scramble the contents and your nest is worthless.

Don't treat your nest as if it were a ball and had to be made into an exactly round package, whether it likes or not. The artistic **irregularity** of a nest's exterior is precisely where its charm and individuality reside.

Don't, Oh! **please don't** make nests into square or cubical packages, in utter disregard of their actual form. If anybody unloads this kind of trash on you, take it out and burn it.

Don't pack away heavy nests, woodpecker stubs and the like, with light stuff. The heavies will go charging about in the packing case, and will make hash of the delicate packages. Grade your material according to its nature, and let heavies fight it out with their own kind.

Don't preserve just the insides of nests. They are of no value whatever. Either collect a nest right, or let the squirrels have it to start housekeeping in.

Don't handle a nest any more than you can help. Every turn disturbs the lining, breaks off a leaf, or drops a twig out of the foundation.

Don't break off the twigs that "stick out" a good ways. Pack around them and preserve them if you can. The chance is worth taking.

Don't unwrap your nest until you are ready to install it in a dust-proof cabinet. A well-wrapped nest will last a long time before requiring attention.

Don't forget that tell-tale. After you have unwrapped a few dozen nests which have lost their outside labels, only to be confronted with a similar blank inside, you'll begin to worry.

Don't treat nests as if they were hats meant to pack one inside the other. I once lost a choice set of eggs because a tyro had jammed one nest inside the other until the brims were exactly flush, thus concealing the eggs in the larger nest.

Don't crowd nests in the cabinet. They not only lose their shape, but they lose their interest. Give them "sea-room."

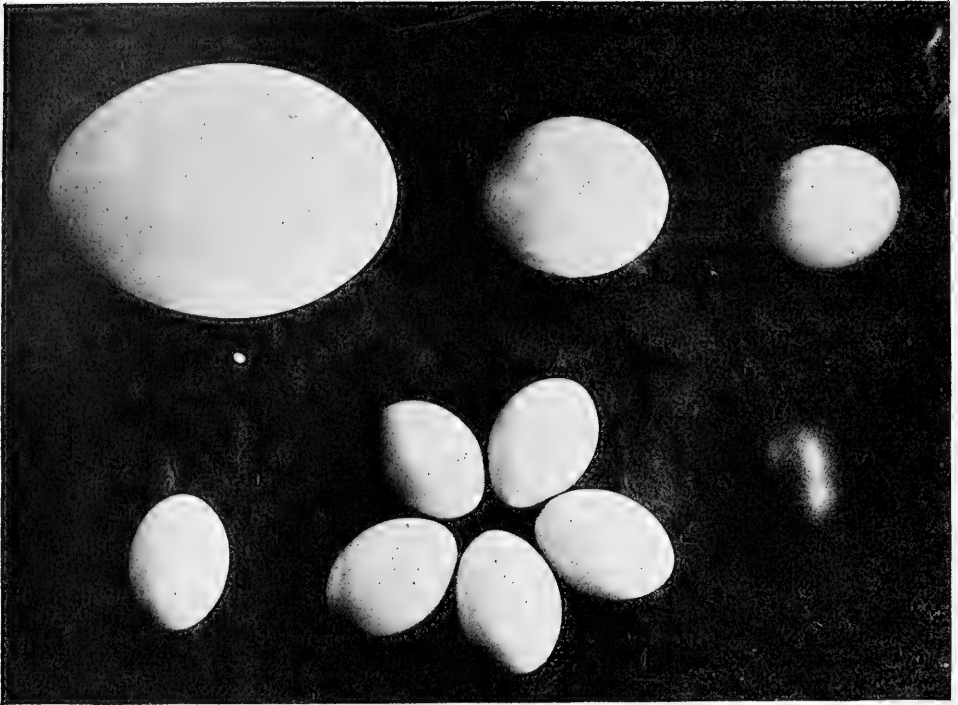
Don't try foolish or fantastic systems of mounting. The simplest methods are the best. Let the nest rest on its own bottom, if it will. If not, bolster it up a little with a small block of wood, a concealed wad of paper, or some simple device. Set nests which have small perpendicular supports, in plaster of paris stained in some modest tint.

Don't stick nests into brown paper bags. They'll get shaken to pieces. Nests, like ladies' waists, require to be closely supported. Tissue paper well tamped in with the fingers will do the trick in case of nests.

Lastly, **Don't** give up if the first aspect of a nest just released from its covers is discouraging. A good deal can be accomplished in the way of restoration by simple, patient manipulation. Square nests can be rounded up, squashed ones fluffed out, and ragged ones restored to daintiness.

AN ABSTRACT OF M. C. O. HISTORY

It will be the purpose of the "Journal", of which this booklet is a forerunner, to recount the significant events in the growth and activities of the Museum of Comparative Oölogy. The field work, especially, undertaken by this institution, together with the record of accessions, and of official actions of the Board, will be recorded in these columns with more or less detail. Inasmuch, however, as the Journal makes its appearance three years after the launching of the Museum, it will be necessary to condense the account of earlier activities, and to present the record, say, in the first four numbers of the Journal—this in addition to an account of current events. Still further, for purposes at least of official and personal reference, the editor has prepared the following abstract of important events connected with the upbuilding of the present collection.



The "Roc" Drawer. Egg of *Æpyornis Maximus* in Upper Left-Hand Corner
Case X Drawer 10, Main Building

May, 1906. The foundation of the future M. C. O. collection laid in Seattle, Washington, by W. Leon Dawson. Although this was the third collection formed by this collector, it differed radically from its predecessors in that nests were taken with the eggs.

November, 1910-February, 1911. Removal of collection to Santa Barbara. Four cubic yards of material handled by Mrs. Etta A. Dawson with loss of only one egg (probably already cracked).

February, 1912. Housing of collection in fire-proof studio at "Los Colibris", and doubling of cabinet capacity.

January 24, 1916. Incorporation of the Museum of Comparative Oölogy.

January 31, 1916. First Annual Meeting of the Trustees. Solicitation of Ten Thousand Dollar fund authorized.

February 2, 1916. Meeting of Executive Committee. Subscription launched, and building of "Annex" authorized. (Building completed April 6th). Formal transfer of Dawson Collection to M. C. O. authorities. The "Foundation" Collection, entered under ninety-five "Accession", or source, titles, occupied at this time eleven cabinets, 405 cubic feet of space, and numbered some 525 species (A. O. U.), and over 5000 eggs.

March 10, 1916. First donation of outside material to new institution, sixty-eight sets of Arizona eggs presented by Frank C. Willard of Tombstone, Arizona.

March 21-31, 1916. Expedition to Santa Cruz Island by two members of staff. Thirty-three sets of eggs of Santa Cruz Jay taken.

April 7-21, 1916. Work in San Luis Obispo and Kern Counties by three M. C. O. collectors. Nest of Golden Eagle brought in.

May 14-July 27th. Automobile tour by Director and Assistant Vrooman: San Ardo, Pinnacles, Los Banos, Sonoma County, Lake Co., Humboldt Co., Mt. Shasta, 2500 miles.

November 8, 1916-January 30, 1917. Attendance by Director upon A. O. U. Congress at Philadelphia, followed by tour of eastern museums, and establishment of many fraternal and exchange relations.

January, 1917. Presentation by Hon. Rowland H. Archer of 42 sets from Australia.

January 31, 1917. Second Annual Meeting of Trustees. Hon. Rowland G. Hazard elected to Board of M. C. O., vice Mrs. Lora J. Moore resigned. Mr. Hazard also elected Honorary Curator of the institution. Budget of \$6000 approved for following year. An order of sustaining members instituted. Engagement of C. Irvin Clay as field taxidermist for season of 1917 authorized.

February-June, 1917. Special work by Field Collector Truesdale on Horned Owls, California Jays, and Western and Cassin Kingbirds resulted in large series of each.

April 2, 1917. Purchase of Clay Collection, 179 sets, chiefly from Humboldt County.

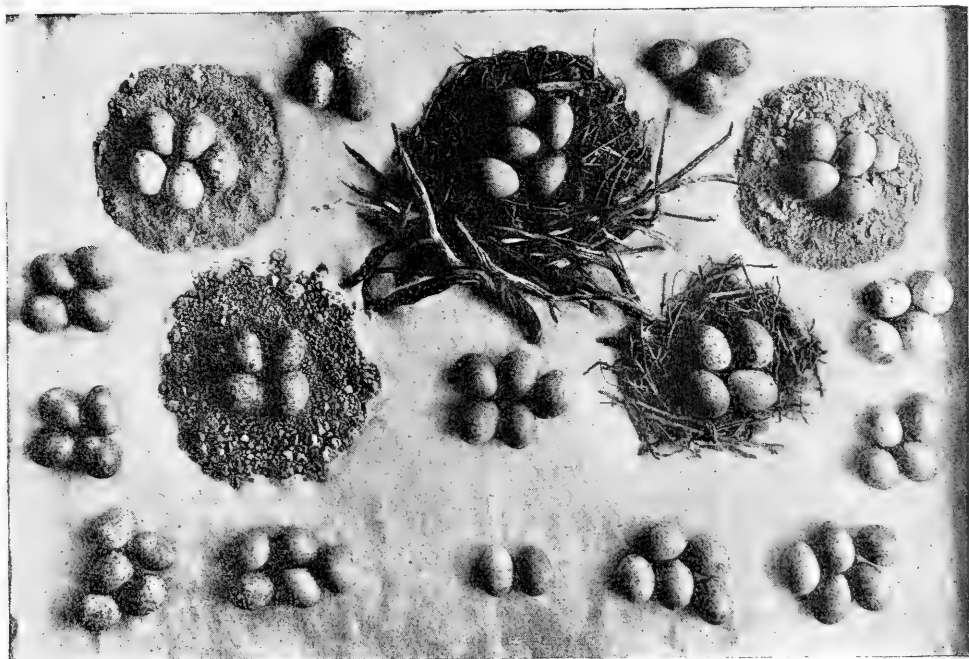
April 21, 1917. Presentation by Miss Caroline Hazard of Roc's egg, *Æpyornis maximus*, said to be the finest specimen extant.

April 24-June 17, 1917. Arizona Expedition carried out by five staff members under leadership of Director. Special work near Tucson and in Patagonia Mts. A highly successful trip.

June 18-September, 1917. Collecting by Clay in Humboldt County.

July, 1917. Presentation by Messrs. Hazard, Ripley and Willard (and one unknown) of the magnificent Willard Collection, comprising 1447 sets, over 5000 eggs of 681 species (A. O. U.). Mr. Willard's personally collected eggs represent the cream of fourteen years' work in Arizona.

February 13, 1918. Third Annual Meeting, postponed on account of the illness, and subsequent death, Jan. 23, 1918, of our Honorary Curator, Rowland G. Hazard. Resolutions of regret and sympathy were passed, and all testified to our deep sense of loss in the death of Mr. Hazard. Miss Caroline Hazard, sister of the deceased, was elected to the trusteeship. Mrs. Etta A. Dawson was appointed as cataloger of the Museum, to serve for the ensuing year. The budget was put on a strictly war basis, and field work practically suspended for the ensuing year. The Director announced his preoccupation as secretary of a local aircraft manufacturing company and was excused from active service pending the return of peace.



The Prairie Falcon Series. IX, 1, Main Building

- February 1st, 1918.** The Estate of Hon. Rowland G. Hazard, of Peace Dale, R. I., announces the settlement, by bequest, of the Hazard Collection of birds' eggs upon the Museum of Comparative Oölogy. The collection will be left *in situ* until a special building can be prepared for it.
- March 27, 1918.** Presentation by Mrs. Mary P. B. Hazard (Mrs. Rowland G.) of the Boyce Collection, containing some good material from Alaska, and a notable albino set of the Ancient Murrelet (*Synthliboramphus antiquus*).
- March-April, 1918.** The trips to Santa Cruz Island, undertaken by two of our younger members, constituted the sole field work carried on by the staff.
- July, 1918.** A special collector, John M. Davis, turns in ninety sets with nests "taken on the side" during the past season.
- September 14, 1918.** Our good friend, Mr. Rowland Archer, remembers us with 43 more sets from Australia, of which fourteen with nests. This lot contains a prized egg of the Lyre Bird (*Menura superba*).
- January 1, 1919.** Accessions at this time number 164 (lots), besides a thousand bird skins not yet accessioned.
- January 18, 1919.** Completion of case installations. The two buildings of temporary quarters chock-a-block with cabinets, 24 in number.
- January 19, 1919.** Fourth Annual Meeting. Resignations of William Norman Campbell and Mrs. Ednah Rich Morse (of Boston) accepted with expressions of regret. Messrs. J. R. Pemberton, Cadwallader Washburn, and Frank C. Willard elected to Board of Trustees. Owing to absence of Colonel J. R. Fithian on service in France, our faithful president was elected vice-president, and Mr. E. P. Ripley graciously consented to assume the presidency. Messrs. W. Leon Dawson, Frank C. Willard and Rowland G. Hazard were elected Fellows, the last named, *propter obitum*, as of January 1st, 1918. Instructions were issued for the founding of an order of Members, which should constitute a local supporting and beneficiary body.
- January 25, 1919.** Exchange gift by Trustee J. R. Pemberton of a fine lot of material, 42 sets collected by him in Patagonia. This lot includes such rarities as *Rhea darwini* (*pennata*) 1/16; *Tachyeres cinereus* (Steamer Duck) 1/7; *Theristicus melanopsis* 1/3; *Polyborus plancus* 1/2, etc.
- February 24, 1919.** Receipt of series material, thirty-two species, sixty sets, choice of over 1000 sets, from model Eastern Collector, Lieut. Richard C. Harlow.
- February 27, 1919.** Founding of order of Members of the Museum of Comparative Oölogy.

To the Scientific Collector of Birds' Eggs

Altho the M. C. O. has done very little publicity work heretofore, this being in a sense our official bow, most collectors are already aware that there has been established at Santa Barbara a unique institution, **dedicated to the scientific public**, and having for its chief purpose the development and exploitation of the unconquerable human interest in birds' eggs. Never was a constructive idea so fanciful-seeming yet so workable; so "impractical" yet so fraught with promise of shedding important light upon the paths of animal evolution. The founding of this institution and the statement of its purposes constitutes a challenge to all egg collectors to take their work seriously, to exploit the scientific value of birds' eggs as well as their recognized beauties, and to turn the trophies of pleasant hours afield to actual human account.

Although only a little more than three years old, this institution, thanks to the discerning generosity of interested friends, boasts the best-equipped as well as the numerically largest collection of birds' eggs west of the Mississippi River, and the largest collection of birds' nests in America. But this is only a beginning. We aspire to become not merely the largest but the **most useful** institution of its kind in the world.

Before we set forth in detail how we hope to accomplish this, allow me to remind you that this is **your museum**. It is dedicated to the public, and you are that public, at least the most interested portion of it. Our collections, our halls, our researches, our system of coöperation, are all for your benefit. The managers of the Museum of Comparative Oölogy are mere custodians and administrators of the common possession, the funded contributions of a virtual Society of Coöperating Oölogists. Unlimited. It's

great sport, this doing things together, and sound sense too. The joy of common effort and the pride of common possession exceed the joys and the prides of private ownership and isolated grandeur as much as a football game exceeds *solitaire*. It's team work that counts these days. Won't you join our team? Remember, it will soon be the biggest team in the United States, and perhaps—well, you get the idea.

This may look at first like an attempt to discourage the private collector. Not a bit of it. We need him and Science needs him. Just as a national gallery of art depends upon the patient unremitting efforts of a thousand artists, each working out his own genius; so a central repository of birds' eggs depends upon the activities of a thousand collectors, each intent upon his own problem and zealous of distinction in his own field, yet each recognizing the value and intended honor of a place in the national gallery. The Museum of Comparative Oölogy, moreover, has this advantage, that it can utilize within reason almost any degree of coöperation on the part of its affiliated members, whereas any academy of art can house but a tithe of a single artist's production.

Again, we can honestly reciprocate. If you are with us, boosting and scouting and contributing, you may be very sure that scores of other collectors are doing the same thing. You will find yourself a member of a big self-selected fellowship of qualified collectors, all as zealous for your welfare as for their own. Tell us what you need to enable you to work out **your problem**, or to complete the series of eggs in your special department, and we'll find it for you. We'll put you in touch with it, and help you get it, if need be. We are here to serve **you**.

Remember, too, that we are not "out after the cash." Oh, of course we could use ten times as much as we have. Who couldn't? And, of course, we won't refuse gifts of cash. Who would? But the Museum of Comparative Oölogy is being worthily supported by Santa Barbara friends, as their contribution to Science. We will house suitably and permanently all that you send us, and it will be kept (subject always to the requirement of the most perfect representation of each species) for your inspection and use.

Here, then, is how we propose to serve, and how we ask, in turn, to be served. We will count it a privilege to receive from you some definite expression of interest, some pledge of affiliation, or some representative consignment of museum material, whether local or foreign. Note carefully who our friends are (see names of Board of Visitors, published elsewhere in this number), and let us know whether you care to be counted in this unique and promising coöperative effort.

WE PROPOSE TO COOPERATE:

(1). By the maintenance of a clearing house of **information** about collectors and collections. To this end you are respectfully requested to place on file with us a statement of the size and condition, housing, etc., of your collection. Give number of species, sets, and eggs. Mention special lines of interest, rarities, desiderata, etc. If possible, furnish us with a complete checked list of your collection, so that we may see at a glance what you lack—all to the end of mutual helpfulness. Eventually, we shall ask for biographical sketches and portraits of all collectors of recognized standing, and we shall maintain both for our own use and that of our affiliated membership (under judicious safeguards) careful records of the scientific standing of all who aspire to collect.

(2). By the establishment of **exchange relations with all reputable collectors**. We are, of course, anxious to build up our collections to the point of highest usefulness, and we aspire to a complete representation of all the world's nests and eggs. We realize that the achievement of this very desirable end must rest upon the activity and loyalty and enthusiasm of private collectors—men who follow the game for their own gratification, and **men whom we must help**.

(3). By **inviting contributions of material of every sort**, but especially of those things which have a definite research value, not rarities alone, although these are very welcome, but carefully selected series of common species, eggs which illustrate individual sequence or high variation, abnormality, or striking uniformity even (as in the remarkable case of the eggs of the Santa Cruz Island Jay). In working out our drawers illustrative of familiar and ordinal relationships, we can use an abundance of normal types, "singles," and "short sets" as well, provided they are absolutely authenticated.

(4). By **seeking affiliation with all reputable collectors**. We are establishing many ranks of affiliation and are recognizing every degree of coöperation from Field Collectors and Sustaining Members up to Fellows (three men have already qualified

for the last-named position, by presentation of life collections; viz., Rowland G. Hazard, Frank C. Willard, and William Leon Dawson). We shall be glad to explain the details to those who wish to join this coöperative movement.

(5). **By concerted effort focussed upon specific problems.** By means of an ever widening circle of friends and collaborators, we find ourselves already able to achieve results of genuine comparative value. Questionnaires and coöperative calls will be issued to the members of our clientele from time to time; and the materials thus secured will be studied and deposited and the results published. An abstract of this year's program follows, and you are urgently requested to coöperate.

WILL YOU HELP US DO SOME SPECIAL WORK FOR THE SEASON OF 1919?

Desiring to obtain material and information illustrating the scope and character of supposed local or geographic variation in birds' eggs, the Museum of Comparative Oölogy earnestly requests you to coöperate in one or all of the following lines of investigation: We want from each patron a series of not less than six nor more than ten normal, or "straight run" sets of each species selected, taken in a single season and in one locality. The material contributed will remain in the custody and ownership of the M. C. O.; the contributors will receive full and grateful public credit for their work; and the results will be published at our expense whenever materials and conclusions warrant. **Will you please designate the species most convenient for your study, and pledge us your assistance in respect to them this season.** Notice that we have selected only common species, and those which may be laid under tribute with least loss or inconvenience.

California Jay (straight run imperative).

Blue Jay (6 sets sufficient unless high local variation develops).

Crow, *Corvus brachyrhynchos* and subsp. (6 sets only).

Cowbird (no limit).

Dwarf Cowbird (no limit).

Red-winged blackbird, *Agelaius phoeniceus* and subsp. (4 sets sufficient unless interesting local variation develops).

Brewer's Blackbird (limit of local variation, as well as straight run desired).

Purple Grackle, *Quiscalus quiscula* and subsp.

Boat-tailed (or Great-tailed) Grackle.

English Sparrow.

Vesper Sparrow (4 sets only).

Song Sparrow, all varieties (4 sets only).

Cliff Sparrow (6 sets only, if uniform; but limit of variation as well as straight run desired).

Loggerhead Shrike, *Lanius ludovicianus* and subsp. (4 sets only).

Cactus Wren (4 sets only, if uniform; limit of variation, if high).

House Wren (4 sets only).

IN MEMORIAM--R. G. H.

By William Leon Dawson.

In the death of Rowland Gibson Hazard, which occurred at his Santa Barbara home, "Dial House," on the 23rd of January, 1918, the Museum of Comparative Oölogy lost its most trusted counsellor and warmest friend. A lover of birds, and a collector from his boyhood, Mr. Hazard had never given way before his hobby, but had lived a singularly active, useful and successful life. He was a man of scholarly attainments as well as of the broadest culture, and he achieved eminence in nearly every sphere of his manifold activities—financial, social, academic, literary, scientific, political, religious. Honors came to him unsought, and a list of clubs, boards, committees, directorates, and societies of which Mr. Hazard was an influential member, would fill a separate page of biography. It is, however, as a patron of science and a devotee of oölogy that we are first called upon to remember him.

In the late winter of 1915-16 intimation of failing strength and doctor's recommendation had brought Mr. Hazard to Santa Barbara, where his sister, Miss Caroline Hazard, was already resident, and where his father, also Rowland Hazard, had spent the evening of his days. Although Mr. Hazard arrived upon the scene too late to participate in the actual organizing of the Museum, he made himself known shortly after, and immediately fell to planning one improvement after another. Many were the pleasant hours (but all too few!) when this welcome visitor "dropped over" to have a friendly chat with the director, or to gloat over the accumulating treasures. He was deeply impressed with the promise of phylogenetic progress made by our rudimentary beginnings of comparative oölogy, and he set himself quietly but determinedly to bring a part of our dream to pass.

But first, he set his own house in order. For now he saw in his life-long hobby not only delight but promise of usefulness. Oölogy seemed worth while for its own sake, and to its soothing surcease of care, much prized by an overwrought heart, was added the pleasant conviction that a hobby might be turned to human account. Accordingly, when the writer visited Mr. Hazard in his eastern home, Peace Dale, R. I., in November, 1916, he found him busily engaged in plans for rehousing and rearranging his own very considerable collection of eggs, numbering over 600 species (A. O. U.). The work was completed in the fall of 1917; and, thus, this important accumulation was left in the best possible shape.

In the early spring of 1917 Mr. Hazard accepted a place on the Board of Trustees of the Museum of Comparative Oölogy, and became also our Honorary Curator. He quickly justified both titles, not only by contributing largely to the support of the institution but by interesting others. Not even his friends will ever know how ambitious his designs in this direction were. In July, 1917, Mr. Hazard and Mr. Ripley joined in the purchase of the splendid Willard collection, which was presented to the Museum of Comparative Oölogy. This was only a beginning; and Mr. Hazard was evidently determined to "back his judgment" in spite of the arduous conditions of the war (to whose successful prosecution he was ministering in a hundred other ways).

Accordingly, when he returned to Santa Barbara late in December, he was surrounded by an air of mystery. There was something on; but he took a boyish delight in keeping "the administration" in the dark about it. Builders dropped hints of conferences, and real estate men looked wise, but the director got only an enigmatic smile. In a letter to a mutual friend dated January 19, 1918, Mr. Hazard said, "Please keep this dark. I am afraid of letting something out too soon."

But the death angel came and stopped all this merry planning. Our friend knew that he might come at any time, and he was ready. A shallow piety has sometimes prayed that its hands might be found on the plow handles when the summons came. But a deeper piety, like Mr. Hazard's, is so fortified, so thoroughly at home with its Maker, that it is ready to quit the golf game or the opera with the same quiet smile of confidence that would become the study or the chapel.

The writer pauses here with bared head. How feeble are our words of appraisal and how futile are all records of achievement. Achievement? There is only one achievement, and that is character. But if character is an achievement, personal charm is a gift. Mr. Hazard had both. Though I speak as one who knew him late in life, and whose privilege was measured by hours instead of years, I cannot but testify that I never knew a man of more thoroughly congenial presence. His was the recognition which is sincerest flattery. Nor was it merely similarity of taste, such as would set up a special current of responsiveness. Mr. Hazard knew how to differ delicately and firmly in opinion, and also he could discourse on matters most distant and recondite. Here was a soul who met you more than half way, who unobtrusively laid gifts at your feet—gifts of imagination, flashes of humor, gifts of experience and ripened judgment not less. His "good fellow greetings" were born not alone of recognition, but of an unconquerable joy in life. You were compelled irresistibly to participate in that joy. Life was good, and its very vagaries were things to be conned over and chuckled about. Life was beautiful, and its beauties were worth the attention of princes. Life was wonderful, always wonderful, and the wonder of a child and the wonder of an angel are one.

He is gone into a world more wonderful, into a world which neither despises nor altogether depends upon our childish efforts. To me it has been an unspeakable privilege to have been associated, even so briefly, with such a man. If the institution which I serve can in any way carry out the designs and perpetuate the honor of this esteemed patron and virtual co-founder, it will be an added privilege and a sacred responsibility.

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Santa Barbara, California

1920

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of the Museum of Comparative Oology

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Intended eventually to be issued as a Quarterly, but now put out as an ANNUAL

VOL. I

DOUBLE NUMBER

NOS. 3 and 4

This issue of the Journal is sent gratis to members of certain ornithological and oological groups of recognized standing. Additional copies will be mailed to prescribed addresses upon request of any Member of the M. C. O. Beginning next January the Quarterly Journal will be sent only to those who have established some definite basis of affiliation with the Museum, or to those who wish their names entered as subscribers and who will remit One Dollar (or Five Shillings), the subscription price for the year 1921. Additional copies of this issue, 50 cents each.

MSS. intended for publication, communications, field reports, inquiries, and offers of exchange and cooperation should all be addressed to the Director, Museum of Comparative Oology, Santa Barbara, California.

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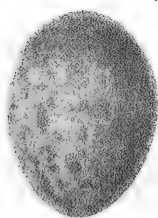
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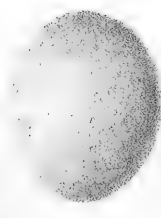
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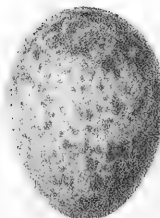
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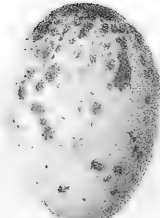
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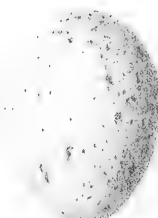
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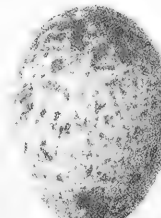
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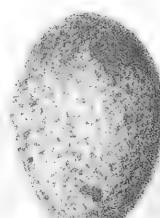
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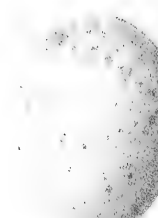
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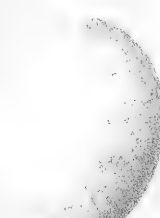
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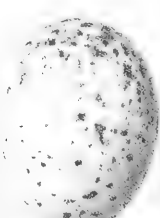
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C3



C4



D1



D2



D3



D4



D5



E1



E2



E3



E4



E5

Two upper rows: Eggs of California Jay, *Apeltes californicus*.
 Middle row: Eggs of Santa Cruz Island Jay, *Apeltes californicus insularis*.
 Two lower rows: Eggs of Northern Cactus Wren, *Heterodytes swainsonii capillus canis*.
 ALL FROM THE M. C. O. COLLECTIONS.

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[Issued March 31, 1920]

THE NEW INTERNATIONAL ORDER OF OOLOGISTS

Members of the Museum of Comparative Oology.



A California Gull, *Larus californicus*

THE logic of events has imposed upon the management of the Museum of Comparative Oology the pleasant task of sounding the call for muster and integral organization of the oölogists of the world. It is true that our early ambitions had not vaulted to such a height. We were not fully aware of the strength of the international cordiality which now exists in the ranks of science, and especially among English-speaking people. We were not clear in our own minds, either, as to how we could really serve the interests of such a scattered company, and we were inclined at first to resent the implication that our plans either deserved or required the use of outside money and outside responsibility in development. But the whole discussion has been lifted out of the realms of hypothesis by the cordial insistence of men whose judgment we cannot but trust. Through a host of flattering pledges already received, the new order, "The Members of the Museum of Comparative Oology," is in virtual existence now; and it remains to publish our plans herewith and to give others the opportunity of becoming **charter members**.

It was perhaps the communication from Henry L. White, Esq., of Belltrees, Scone, and Melbourne, Australia, whose modest inquiry regarding membership, accompanied by a "cheque" for six dollars, precipitated our decision to accept the role thrust upon us. Words of inquiry and encouragement from England and Scotland and India had already arrived. A score of letters from our own country were asking, "How much?" but it took this generous patron of the Royal Australian Ornithologists Union to "shoot first and get the details afterward." Very well, gentlemen, we are off.

It should be understood at the outset that the Members of the M. C. O. expect to become a responsible body. Although the administration of the institution will still be in the hands of fifteen trustees, who are the incorporate body, and who must hold the charter, the members will be privileged to nominate one such trustee annually. And since the trustees are divided into five annual classes of three each, this will give the members a constant representation of five upon the board. Pending

completion of the organization of the Members, the following members of the board are designated as Member-trustees, and will be asked to serve in that capacity, pending the necessary amendment of the charter and until their successors are appointed: Cadwallader Washburn (1921), John R. Pemberton (1922), Frank C. Willard (1923), W. Leon Dawson (1924), and E. Raymond Driver (1925). In the nomination of trustees, these rather strict qualifications probably ought to be observed: First, identification with the ranks of oölogy, whether as field collector or patron; Second, a reasonable ability on the part of the incumbent to contribute, either by means or effort, to the upbuilding of the M. C. O. Third, residence in Santa Barbara; or in case of non-residence an ability to visit the Museum at least as often as once in two years, in order to keep in personal touch with its work. No one would wish to accept a merely formal incumbency. This arrangement manifestly guarantees the validity of membership, and it justifies our claim that the M. C. O. is a co-operative institution founded and maintained for the good of the craft. At the same time, it assures responsible local management and the integrity of local interests.

The objects to be secured by the new organization of members are three in number, each implying the others, yet of sufficient distinctness to deserve extended consideration here. In the **first** place, we wish to establish **oölogical fellowship** throughout the world. The devotees of this pursuit naturally seek the fellowship of their own kind, but means have hitherto been lacking. The barriers of caste or nationality or provincialism have been too strong hitherto; but now the barriers are down. Walls of prejudice have been razed; the horizon of science has been enlarged; boundaries of interest have been effaced, and fellowship is in the air. "United we stand, divided we fall," must be the motto of all self-conscious interests today, whether social, political, religious or scientific. The interest in oölogy has come to self-consciousness; the futility of scattered, unrelated efforts has been clearly demonstrated. Indeed, the reproach of futility which has long lain upon the claims of oölogy, is clearly seen to have been due to the confusion of detail and to lack of correlation among oölogists, rather than to any defect of value in the subject itself.

It is doubly important to serve fellowship here; first, that a real science may be evolved; and, second, because the collecting of birds' eggs, whether followed as a fad, a pursuit, or a passion, is likely to become at least a major avocation, a thing for grown men and women to take seriously, and not to dismiss with the other "illusions of youth." Such an interest, so conceived, deserves a recognition, an organ, and a fellowship. This fellowship may well eventuate in annual meetings of increasing importance and in the establishment of traditions which shall guide the science henceforth.

In the **second** place, we wish to secure the **mutual benefit** of all qualified collectors and votaries of the science. This may be done (1) through the quickening of enthusiasm, (2) through the dissemination of information, (3) through exchange of material, (4) through co-operation in a common cause, and, practically, (5) through the establishment of a Bureau of Registration. To dwell only upon the last point, the management of the M. C. O. announces that it has established and will maintain on file for the benefit of the Members of the M. C. O. a roster of the world's collections and the world's collectors, together with all available information regarding the status, experience, and special interests of all such collectors, and the scope, characteristics, and special claims of all such collections. The information afforded by the files will be supplemented upon request of Members by confidential or personal advice upon any subject legitimately connected with oölogy.

In the matter of exchange, it is not the present intention of the management to conduct a "general exchange business," nor to provide a medium for public advertising, such as that already afforded, for example, in Mr. Skinner's excellent "Oölogical Exchange and Mart." It is rather to place the resources of this institution at the service of those who require very special material, or who wish to make private or exclusive arrangements through correspondence.

The quickening of enthusiasm and the dissemination of information require an **organ**, perhaps several of them, and it is this aspect of the case which we would especially urge upon the immediate attention of the world's collectors and the votaries of oölogical science. It is notorious that no such publication as the one proposed exists. Collectors' mediums and trade journals do not constitute the organ we contemplate. They support the movement, rather, and argue the necessity for such a dignified, scholarly, and comprehensive journal as we propose. It is patent, also, that the regular ornithological publications are a little restive over the offerings of articles dealing with oölogical specialties. We have trespassed upon their hospitality long enough. We ought, in all consideration, to leave them to their more exact province of plumage descriptions, sequence of molts, osteology, and in general, all those matters which pertain to the **bird**. Our province is the egg, and we ought in all fairness to our oölogical compeers to pursue our own hobby at our own charges.

We do not offer this present number of the Journal as the ideal journal proposed.

For in it the reader will see a confusion of functions, viz., exploitation of the interests of the M. C. O., and an exposition of some of the problems of pure oölogy. It is time to separate these functions, and if this present "call to the colors" is reasonably well received, we shall launch "**The Comparative Oölogist**," first as an annual, and later as a quarterly, illustrated magazine, to be devoted solely to descriptive and comparative oölogy and "the breeding cycle." The Journal of the Museum of Comparative Oölogy will at the same time resume its functions as a quarterly exponent of the Museum interests, and it will take on the additional responsibility of promoting the new organization of the Members of the M. C. O., becoming the official organ of that society.

The **third** object proposed in the organization of the Members of the M. C. O. is the **support of the Museum** in its co-operative functions. If the Museum is in any real sense to belong to the collecting world, then it is fair that it should receive a portion of its support from that world. Indeed, it is the forcing of the issue of present service to the outside world which has led us to offer to take that world into partnership, a partnership of responsibility as well as of privilege. Our task is the upbuilding of an oölogical museum which shall be in reality a common possession, and which shall be able from the outset to function vigorously as the exponent of oölogical science. To do this will require a generous expenditure in publication; and it is proposed that the new organization, the Members of the Museum of Comparative Oölogy, shall meet a portion of this expense, as well as other related expenses devolving later, by the payment of fixed annual dues. These annual dues, Five Dollars for Members, Collector Members and Exchange Members, and One Dollar for Associates (who will receive only the Journal), will be high in proportion to the value individually received **at first**; yet by no possibility will the aggregate, for several years to come, equal the amount actually expended by the Museum treasury on behalf of its Members. For example, this issue of the Journal costs us in the neighborhood of \$600, and we shall be agreeably surprised to have eighty **outside** enrollments of full member rank the first year (there are already more than thirty, and fifty local registrants, besides Patrons.) Two years hence the expenditure for the Journal and "Comparative Oölogist" combined should be in the neighborhood of \$2,000; and five years hence in the neighborhood of \$5,000.

It goes without saying that visiting members will enjoy every privilege extended to the local body of members, participation in bird-walks, study meetings, access to the collections, etc. It will be a pleasure to cultivate these personal contacts, and we look forward with hospitable complaisance to the time when Santa Barbara shall be recognized as a sort of Mecca for oölogists, a rendezvous for the faithful, toward which every pious bird-nester, however distant, will direct his footsteps at least once in a lifetime. That this need not be an idle dream is evidenced by a roster of Santa Barbara's notable visitors appearing elsewhere in this Journal.

The success of the plan outlined will depend primarily upon whether we have "guessed right" as to the factors involved. We guess, or rather we have a very strong conviction, that the fellowship of field experience in collecting will be a very real fellowship. There are infinite possibilities of delightful association ahead. We believe that a Bureau of Registration and exchange of confidences will confer a distinct benefit upon all who participate. We believe that an actual co-operation through the pooling of highly significant material will enable us to solve problems which no private collector can solve, and which no other public institution has attempted. We believe, that is, that **Oölogical Science** can best be served by a world-wide fellowship of Members supporting, owning, and partly controlling the Museum of Comparative Oölogy.

The success of our ambitious program for oölogy will depend, also, upon another factor, a very important one, **patience**. Partly because of the writer's own limitations of time (as set forth elsewhere in these pages), but more because of the need of further counsels and contacts and an actual sharing of responsibilities, the writer feels that he will require at least two years' time to work out the completest details of a consistent, responsible, and mutually beneficial organization. It is for this reason that we defer discussion of the qualifications of Collector and Exchange Members until a future issue. For these reasons, also, we do not wish to be understood as promising too much, or undertaking too much. We are anxious to put co-operation upon so simple a basis that we can get under way at once. We shall discover in due course of time what sort of materials we have to work with; and how co-operation can best be made to serve the common good. That discovery will require patience.

We are particularly anxious at the outset not to make large promises nor arouse false hopes in regard to money matters. Better far to regard your annual dues as a contribution to the institution, by means of which and in view of which the institution will endeavor to serve a large public. Better so regard it than as payment for magazines and personal benefits which certainly cannot be worth five dollars a year at the outset. In order to obviate any residual unpleasantness connected with the payment of dues for remote benefits, we are going to propose a plan for temporary use, and

that is, that members pay their dues, if they care to, in oological material. An annual contribution of eggs, or nests and eggs, may be a very real contribution to the common fund. This will be meeting us half way, and it will support our co-operative claims. Indeed, the editor cannot think of a fairer, or more feasible, or more professional basis of co-operation for the Members of the M. C. O. than is offered by an annual contribution of material. The only reason we do not make this the exclusive basis of membership is that many will find it easier to pay cash.

Those who elect to pay their annual dues in eggs are asked to bear in mind two or three considerations. The contribution ought, if possible, to bear the stamp of your own personality. A personally taken nest, or a group of nests and eggs taken by a collector working under your personal supervision, will be most acceptable. It will express **you** and emphasize **your** connection with us. Again, if you have something out of the ordinary, a nest (always with eggs) of rare workmanship, a "variety" set, a "freak" set, which finds its value only by taking place in a large series, such a fee-gift will be most appropriate as your contribution to the cosmopolitan cabinets of the M. C. O. It is perhaps fair to say that a material contribution, if it has to be closely valued as a fee, should be appraised as "half list," since it is in lieu of cash. But we want, if possible, to put the member dues on an entirely different plane of effort. They should be judged as a contribution to science as well as an offering for the common good, and not at all at "catalog rates." For this reason and to promote fellowship, we are going to ask the privilege of publishing year by year an exact description of each member fee. This will be fair to all and it will have a manifest tendency to keep the standard of co-operation high.

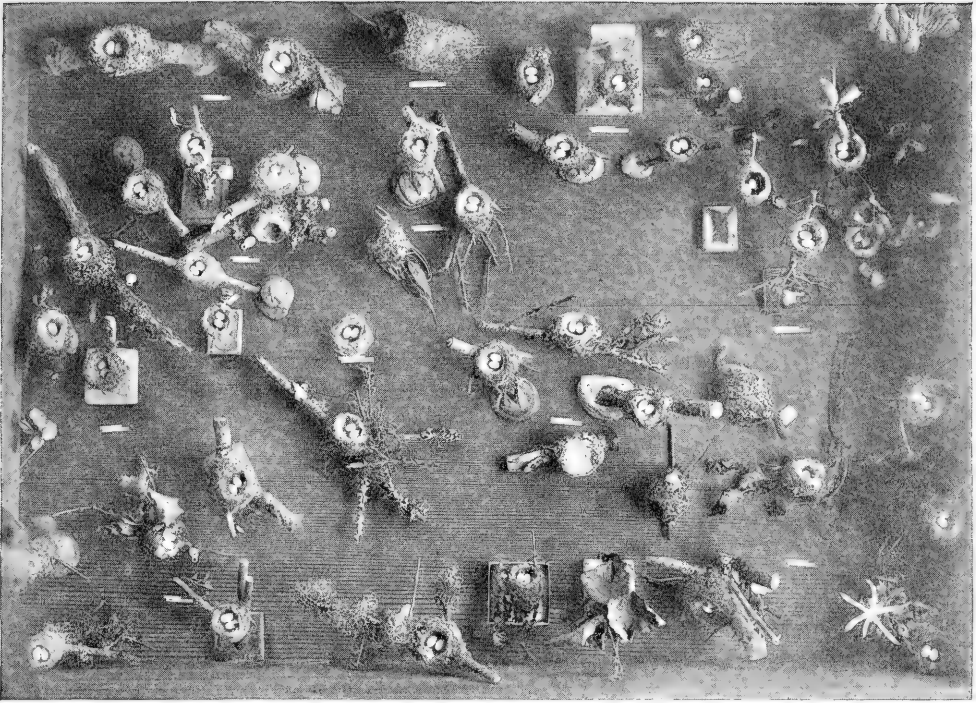
For example, a box just to hand and still unopened (think of it! but this article must be written first), comes from our friend, J. G. Gordon, of Corsemalzie. It purports to contain a series of six sets of the Keeshank, *Totanus totanus*, six sets of the British Ringed Plover, *Charadrius hiaticula major*, and six sets of the Oyster-catcher, *Haematopus ostralegus ostralegus*, including two sets of four eggs each—a handsome accession indeed! It is a "contribution," unspecified as to relations, but if we can screw up our courage, we are going to ask Mr. Gordon to regard this as his member contribution for 1920. And if he consents, then it will be "up to" his neighbor, Mr. William Mair, of Ayrshire, who writes us that he has **eight** species of Shore-birds breeding on his farm. Think of us poor Americans, whose proudest local boast is often Spotted Sandpiper (*Actitis macularius*) or Killdeer (*Oxychus vociferus*)!

And of course the writer has been sounding this thing out a little by correspondence, because he wouldn't dare make a fluke at the kick-off. The response is most satisfactory. The Members of the Museum of Comparative Oölogy is an assured fact. The following are the names of the first twenty-five applicants for membership in the M. M. C. O., a sufficient earnest in themselves of the success which we anticipate:

Harry Harris
Henry L. White, Australia
Richard C. Harlow
John E. Thayer
Professor Lynds Jones
A. C. Bent
R. Magoon Barnes
R. P. Sharpless
Dr. B. R. Bales
Nat A. Francis
Jack G. Gordon, Scotland
W. H. Workman, Ireland
A. Brazier Howell

T. P. Austin, Australia
B. C. J. Bettington, Australia
Edward E. Armstrong
John R. Pemberton
Gilbert R. Rossignol
Gerard Alan Abbott
Guy Love
Wm. Mair, Scotland
Geo. M. Ward
Philip C. Dutton, England
Professor Wm. B. Kirkham
Donald R. Dickey

A general invitation is hereby extended to all bird-lovers, to all collectors of birds' eggs, to all students of oölogical science, and to all well-wishers of the Museum of Comparative Oölogy, to present your names and those of your friends for membership in the new organization, the **Members of the Museum of Comparative Oology**. These applications must, of course, be acted upon by our membership committee, but it is our intention to deal very liberally at the outset, and to admit every candidate save those few whose professional conduct has been unsatisfactory, or against whom charges have been preferred. Moreover, this number of the Journal is being sent only to carefully selected names, and the receipt of this copy is tantamount to a personal invitation. Lest this policy may not seem sufficiently discriminating, we hasten to add that the classes of Collector Members and Exchange Members, to be later distinguished, will be asked to meet more discriminating tests, as, for example, endorsement by two well-known scientists, or men personally known to the management of the M. C. O. It is not intended to make of the Collector Members and the Exchange Members a more exalted rank within the order, but only to ask of candidates for these more active relations such evidences of scientific accuracy and business responsibility as will justify our institutional endorsement.



The Hummingbird Drawer. Case X, Drawer 6, Main Building

For the sake of getting well under way, this liberal policy will prevail until August 1st, 1920, and those who present themselves before that date (and prior to the adoption of formal by-laws) will be considered **charter members of the order**. After August 1st, it will be necessary to observe a little more formality, and to consider only recommended applicants.

Those who do not care to identify themselves so fully with the new movement, but who wish it well and who desire to keep in touch with the activities of the M. C. O. through its Journal—may become Associate Members by the payment of One Dollar a year. The privileges offered to Associates are subscription to the Journal, identification with the movement, and mutual acquaintance through annual publication of names.

Further, in order to promote the interests of the order through the co-operation of other public museums, any director of a public museum which contains a collection of birds or birds' eggs, or any curator of a department of ornithology or oölogy in a chartered public institution, may become a **Member** of the Museum of Comparative Oölogy upon application and the payment of a registration fee of one dollar. It is understood, further, in the case of such director or curator members, that they will become responsible for the placing of their official bulletin, or other organ, upon the "Journal's" exchange list.

Brethren, **omnis ex ovo!** The hen is on. The case is in your hands. If co-operation is the key word, let's work it. The Members of the Museum of Comparative Oölogy want your co-operation, your membership, your counsel, your contribution, your loyal support. Join the boosters! Send all applications and enclosures to the Secretary, Museum of Comparative Oölogy, Santa Barbara. Make cheques or money orders payable to George S. Edwards, Treasurer, if you please. And because this call will be received in all parts of the English-speaking world, we rule that in spite of the present and most regrettable exchange differential, the payment of One Guinea on the part of British subjects, shall be deemed the equivalent of Five Dollars in settlement of annual member dues.

ENCOURAGEMENT AND COUNSEL.

From Our Correspondents and Reviewers.

"There has recently been formed at Santa Barbara, California, the 'Museum of Comparative Oölogy,' an institution dedicated solely to the preservation and study of birds' eggs and nests. This seems an eminently proper step. Freed from the rivalry of other branches of oölogy, the officers of such a museum may hope eventually to accumulate the first truly representative collection of eggs from all parts of the world. I should like to see the major part of all really valuable egg material in the country go to such a centralized, special museum, instead of being scattered as it is now. The museum might then become a clearing house of whatever scientific information may be derived from the study of eggs and nests, and a laboratory where students of oölogy might engage in serious research. It would do much toward discouraging general and haphazard collecting, and would educate naturalists to see the greater desirability of collecting toward the perfection of this special museum."

—Robert Cushman Murphy, in "Forest and Stream," June, 1919.

"I will try and send along a further consignment of eggs at an early date. It will not be my fault if the M. C. O. has not the best collection of Australian eggs in America before long."—Rowland H. Archer, Lyndhurst, Victoria, Australia.

"Have just finished reading the 'Journal' from cover to cover. It looks as though you are building a wonderful institution in the Museum of Comparative Oölogy."—Dr. Blenn R. Bales, Circleville, Ohio. (Letter, April 8, 1919.)

"I have read with great interest Nos. 1 and 2 of your Journal. I hope anatomy and the biology of the egg, its structure, pigmentation *de novo ab ovo*, will be taken up by your society."—E. C. Stuart Baker, F. Z. S., Hon. Sec. B. O. U., C. F. A. O. U. (Letter May 5, 1919.)

"Many thanks for the copy of your 'Journal of the Museum of Comparative Oölogy,' which I have just finished reading. I found it very interesting, and can testify from eyesight that you have very much more than made a good beginning with your work."—Dr. Louis B. Bishop. (Letter, May 18, 1919.)

Dr. Bishop visited the Museum several times in the fall of 1918.

"I have just received and read with great interest, from cover to cover, the 'Journal of the M. C. O.' and I beg to offer you my sincere congratulations. I am delighted to see that the phylogenetic and biological aspect of oölogy are at last to receive adequate treatment. I believe with you that it is a very promising field for research and I congratulate you heartily on the opportunity that lies before you."—Dr. Hubert Lyman Clark, Museum of Comparative Zoology, Cambridge.

(Letter, April 9, 1919.)

"You and your fellow workers are to be heartily congratulated on the great beginning already made; and the time is not so far distant when the stupendous work of comparison, the main object of the museum, can be commenced."

—Philip C. Dutton, Esq., Stone, Staffs, England. (Letter, April 21, 1919.)

"In future issues of this Journal we hope to see valuable contributions to our knowledge of those interesting phases of bird-life which surround the egg; all the interesting instincts and habits of nest-building and nidification, on the one hand, development and care of the young on the other."

—John Treadwell Nichols in "Bird-Lore," July-August, 1919.

"I am extremely obliged to you for the copy of your 'Journal' received recently, and I beg to offer you my congratulations upon its very interesting matter. I hope in the course of next spring to be able to send you some specimens for your collection."

—Norman Gilroy, Esq., of London. (Letter, Aug. 29, 1919.)

"I think the idea is great and I wish you every success in your undertaking. I will be very glad to help you as much as I can with British and other eggs, in series where possible."

—J. G. Gordon, Esq., Scotland. (Letters of Aug. 27, and Oct. 19, 1919.)

"It is immensely interesting. I am especially glad to see you urge the collecting of nests and point out the way to properly take and preserve same."

—A. M. Ingersoll, San Diego. (Letter, April 22, 1919.)

"Every page was read and reread with much pleasure."

—Ralph W. Jackson, Cambridge, Md. (Letter, Nov. 13, 1919.)

"I will be pleased to assist you in the furtherance of your enterprise."

—Wm. Mark Pybus, Esq., Newcastle-on-Tyne, England. (Letter, Sept. 8, 1919.)

"This brilliant day, the auspicious beginning of the year 1920, moves me to write to you something of what has been in my mind for many moons in regard to the Museum of Comparative Oölogy.

"Your first letter to me some years ago announcing its conception aroused a good deal of interest on my part and a little cogitating made me realize what a unique position such a museum would occupy. Nests and eggs have always been of the greatest interest to me, much more so than skins; and the ideas which rose in my mind as I contemplated your proposal made me realize the possibilities which lay before your project. Later, your published statements of your plans and purposes gave these ideas a more concrete form and a better conception of the work to be done.

"Permit me at this time to write these few words of appreciation and encouragement, bespeaking the support of all oölogists, in the east as well as in the west. May I also add a prophetic word forecasting an accelerated growth of the Museum of Comparative Oölogy. It is already an institution of which all of us are proud, particularly those who have helped a bit. The western collectors are lifting bravely. May more of us in the east lend a hand and live to be proud of doing so."

—Frank C. Willard, Farmingdale, L. I. (Letter, January 1, 1920.)

"We must very heartily congratulate our brother ornithologists of Santa Barbara, California, on their enterprise in starting a Museum with its attending Journal on Oölogy, a science which has been grievously neglected though collectors of eggs are so numerous. We wish the Museum and Journal the greatest success, and recommend the latter to all oölogists for careful study."

—Review in the Ibis, official journal of the British Ornithologists Union, July, 1919.

AN OOLOGICAL REVISION OF THE ALCIFORMES.

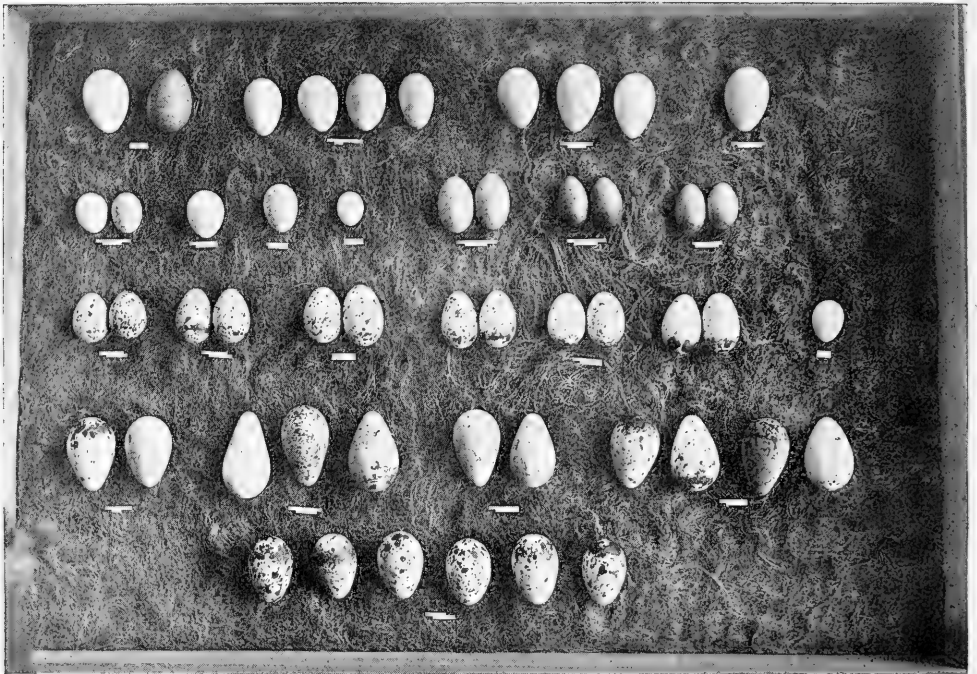
By William Leon Dawson.

Although a lifelong student of birds, the writer does not profess to be deeply versed in the lore of taxonomy. The tomes of comparative anatomy, if not exactly sealed books to him, are scanned with a reverent (but not too reverent) eye. He does not belong, on the other hand, to the school of "speciation specialists." It has never been his privilege to describe a new species of birds, nor even a new subspecies. This, truth to tell, not from any lack of opportunity, but rather from impatience, or an inhibiting sense of humor. There will be burdens enough borne by trinomial nomenclature, God knows, without the inflictions of one more aspirant.

These disqualifications are confessed at the outset in order to claim indulgence for ignorance of many technical treatises and reviews of classification, as well as to justify, if justification is possible, a position of detached criticism. While the methods of the anatomist are not altogether familiar to me, his confident claims are familiar enough. Taxonomists, I see, are all too easily satisfied with incomplete, or superficial evidence; and the "speciation specialists" are content to refine and polish the surface of the taxonomic structure, without concerning themselves as to the remodeling of the structure itself.

As an outside critic, then, it seems to me that the taxonomic architects and their subcontractor-builders, whether osteologists, splanchnologists, pterylographists or metric clerks, have overlooked an important line of evidence in trying to determine what shall go where. For, it goes without saying, the taxonomist's task is to reconstruct the course of biological history. He is seeking not alone a formally ordered, or traditional body, of knowledge, but an understanding of the actual facts. If he is honest, he is not constructing some ideal filing system; but he is reconstructing the outline of the tree of life. He is trying to discover phylogenetic relationships, that is, the relationship of nature, the blood relations of father and son, or mother and daughter, and so on to the remotest ramification of the living.

Given two birds, therefore, the taxonomist scrutinizes them in every aspect with the chief purpose of determining the degree of their relationship. It is not enough for his purpose to say that the birds are of the same color, or of the same size, or of the same texture of plumage, or even of a fairly similar bony structure. I use the last-named term very carefully, for experience has shown us that **identity** of bony structure, at least identify within our ability to distinguish, indicates specific, or at least generic resemblance in the birds compared. But the deep-seated, conclusive characters, by reason of their very immobility, are of an indeterminable venerableness. We cannot write history in the terms of the established alone. Even where the bony structures of birds are bafflingly similar, there may be other outstanding characters of divergence which place the birds more or less apart in the phylogenetic

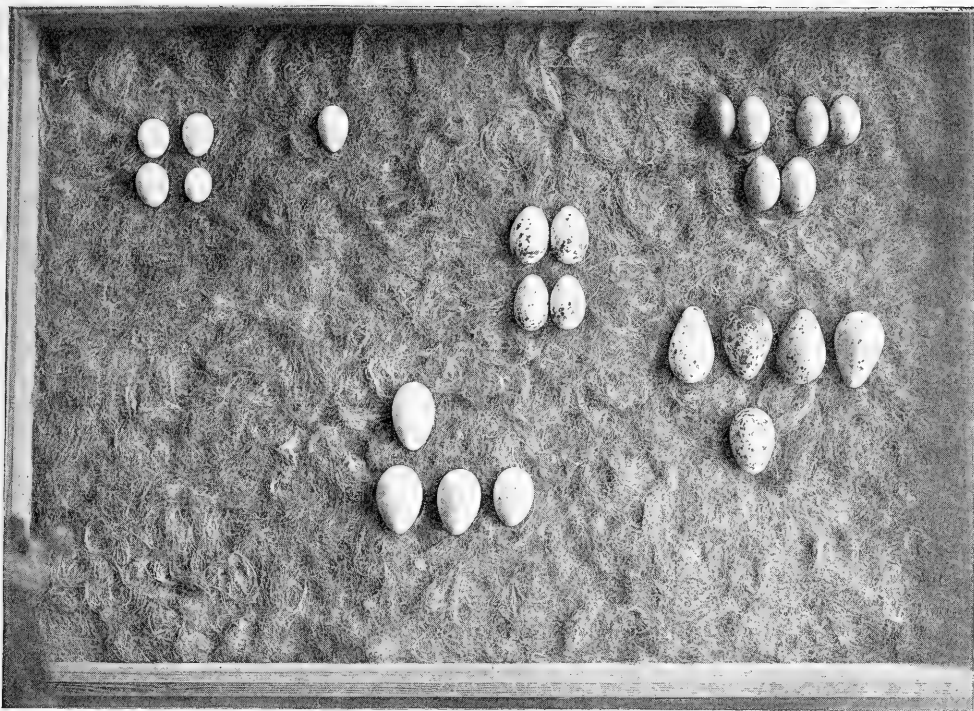


The Alciformes, arranged in the order of the A. O. U. Case XXI, Drawer 12, Annex.
Note that the group *Æthiinae* as defined by the A. O. U. includes the last egg in the top row, all in the second and all in the third, save the last one.

scale. Such characters have, of course, been scrutinized in turn by the careful taxonomists, and differences in plumage, or relative proportions of bill and feet, differences in special structures, or in muscular or splanchnic equipment, have determined the various stages of classification from subspecies back to orders. The anatomist, however, paying attention to the bird alone, has always been handicapped for lack of a measuring rod, an outside test, a quasi independent criterion. At the best he has never had a concomitant element, or time scale, remotely comparable to that of the bony structure. As a result, an association of similarities has always deceived him, or at least baffled him. With a single evidence of discordance at hand as between two birds, he attaches either too much or too little significance to it, and he never knows which.

The helpless plight of the taxonomist is nowhere more clearly manifest than in the case of the *Alciformes*, the Murre-Auk-Guillemot group. The *Alciformes*, viewed anatomically, are a closely homogeneous group. The distinctions so far determined are mostly superficial, and so far indecisive that one authority (Ogilvy-Grant) can group Auks, Dovekies, Murrelets, and Guillemots together as *Alcinae*, and Auklets with Puffins as *Fraterculinae*; while another authority, viz., the A. O. U. Committee, not only breaks up the latter group into *Fraterculinae* and *Æthiinae*, but transfers the Murrelets and the Guillemots to this new-formed sub-group, the *Æthiinae*. Coues (Key, 5th Edition) does no better, though he calls this sub-group *Phaleridinae*. The characters assigned in either instance are of the utmost degree of superficiality, having to do with the shape of inner claws or the shape and relative degree of feathering of nostrils, etc. However characterized, probably no more heterogeneous assemblage of an equal number of species (viz., fourteen on the A. O. U. list) exists in nomenclature today, than this same sub-family *Æthiinae*, as defined by the A. O. U. Committee. It contains three perfectly distinct groups in its own right, and has plundered one species, viz., *Cerorhinca monocerata*, from its neighbors, the *Fraterculinae*. The evidence against this taxonomic mongrel, the *Æthiinae*, as against all the taxonomic indecision or blundering which has misrepresented the *Alciformes* for generations, lies with the egg. The egg, then, shall be a court of last appeal.

The evidence in this case is so simple, and to an unprejudiced observer so convincing, that all one has to do is to present an orderly rearrangement of the eggs of the *Alciformes*. Phylogenetic differences, which have been obscured or entirely



The revised arrangement of the Alciformes. Case XXI, Drawer 6, Annex

Æthiidae	Cepphidae	Synthliboramphidae
	Fraterculidae	Alcidae

overridden by homoplasy in case of the birds themselves, stand out with indelible clearness in the case of the eggs. This evidence is fairly startling. There are five or six natural groups of the Alciformes, and the grouping of the eggs is so natural, that if a six-year-old child were set the task of grouping the eggs according to his own fancy, he would probably define these five or six natural groupings. The only hesitation which he would be likely to feel, would be as to whether he should put the definitely greenish blue egg of the Dovekie, (*Alle alle*) with the pure white, or bluish white, eggs of the Auklets proper, and this same hesitation we confess. Or, again, disregarding the shape, the child might be tempted to place the rather highly colored ellipse of the Kittlitz Murrelet (*Brachyramphus brevirostris*) with the gaudy Murres' eggs, instead of leaving it with its fellow *Brachyramphi*.

The evidence is, however, so patent to the eye, that it never occurs to anyone who has seen the two drawers in the M. C. O. collections, to question it. But not alone because the illustrations presented herewith are necessarily less satisfactory than immediate vision, but because this rule of common sense is unfamiliar or unwelcome to the taxonomist steeped in his own anatomical traditions, we must assert that this rearranged grouping does not conflict with known anatomical evidence—it clears it up and confirms it rather; and, more fundamentally, we must urge that oölogical evidence is good evidence. Assuming the first contention, let us take the field of our specialty with greater care.

It will not be possible within the assigned limits of this paper to argue and prove the leading propositions of oölogical science. Like any other scientific inductions, the conclusions of comparative oölogy are based upon experience. These may be illustrated by example, but the induction itself is a laborious process. It will be sufficient for our present purpose to advance the propositions in order that we may test them out in the case under consideration.

The egg, being itself a product of evolution, is, insofar as the simplicity of its structure allows, a perfect epitome of evolutionary progress, and a perfect index of phylogenetic relationship.

It follows from the foregoing, that no characteristic of the egg, whether size, shape, texture, ground color, or pigmentation, is without phylogenetic significance.

Making, again, all due allowance for the simplicity of the factors involved, a combination of similar characters in eggs establishes a presumption of phylogenetic relations in the parents.

The egg, although the product of an individual bird and susceptible to some degree of modification by that parent, is, in its more fundamental characters, the embodiment of a quasi-independent line of development, viz., the reproductive stream.

The somatic significance of the individual is probably subordinate to and determined by that of the reproductive stream.

The rate of change in the evolution of the egg is neither determined by nor concomitant with the rate of change in the evolution of the individual.

The direction of change in the evolution of the egg is not largely, or perhaps not at all, determined by the direction of change in the evolution of the individual. Being rather a quasi-independent embodiment of the creative stream, it owes a part of its character to independent environmental reaction.

The egg being of much simpler function than the individual, the rate of change in the egg is likely to be very much slower than that of the individual. This sometimes amounts to practical stagnation, as in the eggs of the Hummingbirds; and a comparatively slow rate is characteristic of the eggs of all non-Passerine birds. In the eggs of Passerine birds only, there is to be observed a notable quickening of the rate of evolutionary change, with a resulting variety and instability, affording in many instances evidence of changes actually in progress.

Because of this observed slow rate of change in the eggs of non-Passerine birds, the evolution of the egg appears to lag behind that of the bird, and by so doing the egg often preserves a record of phylogenetic history otherwise lost to our knowledge or powers of perception. The evidential value of the egg, therefore, is of the highest significance in the determination of the phylogenetic history and relations of non-Passerine birds. Where other evidences fail, or are obscured, the evidence of the egg becomes of transcendent significance.

The evidence of the egg so consistently supports and underwrites the sum of all other evidences, where these are clear, that it may be unhesitatingly followed and be deemed decisive, where other evidences are conflicting or obscure.

In particular, and because of all the foregoing conclusions, groups apparently homogeneous in structure and only slightly different in appearance, are assuredly only remotely related in time if their eggs show decided differences.

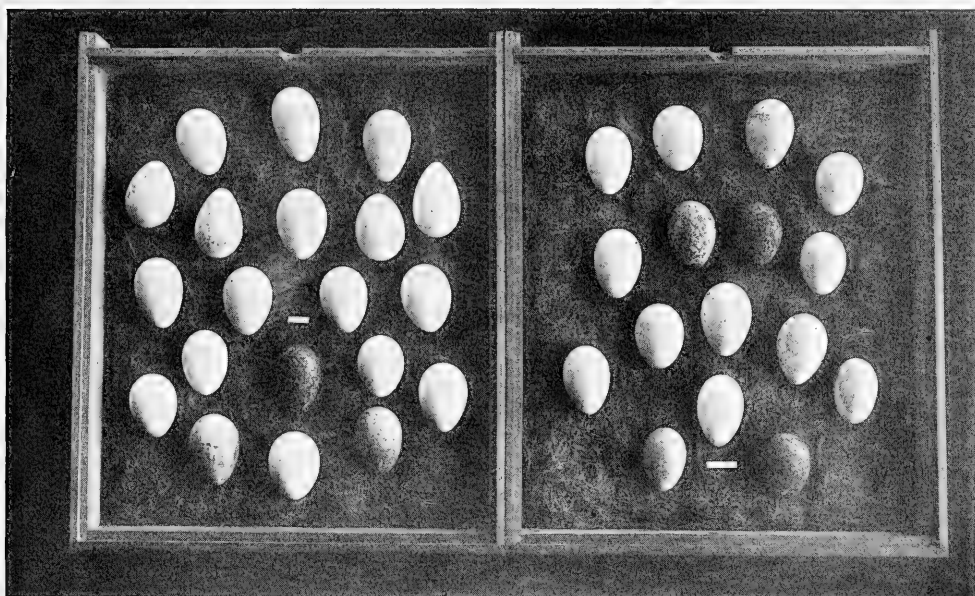
There is, of course, much more that might be said regarding the significance of the egg as evidence, but the foregoing considerations are sufficient for our approach to the study of the Alciiformes. In the marked diversities of the eggs, which serve to throw the Alciiformes into five sharply-defined groups, we believe that we have the key to the phylogenetic appraisal of this natural order. It is only in the light of the egg that the history of the group can be in any wise clearly understood. In default of paleontological evidence (and that is neither clear nor copious), the remarkable somatic homogeneity of this group might lead us to suppose it of comparatively recent origin, say a Miocene offshoot of the Laro-Limicoline stock. But the oological evidence shows that a chasm yawns between the *Æthiidae* (the Auklets proper and the Dovekie, as outlined below) on the one hand, and the four remaining families, the *Alcidae*, the *Fraterculidae*, the *Cephenidae* and the *Synthliboramphidae*. A very considerable gulf probably separates the *Æthiinae* from the *Alinae* and the fissure between them may possibly reach back as far as that between the two divisions above defined. These main lines will scarcely converge above the upper Eocene, and I would sooner surmise the very lowest Eocene.

That the various species of the Alciiformes should have followed such closely parallel lines of development is interesting, but in no wise exceptional. Like the Penguins and the Petrels, the Auks have been subjected throughout the æons of geological history to fairly uniform conditions. Some movement to or from the North Pole there has doubtless been in obedience to the great fluctuation of climate, which we know to have occurred; and the actual divergence of species was doubtless accomplished when some vast glacial epoch, not the last, forced the birds southward and apart. Even when a tropical climate prevailed in Greenland, the group as a group might have been enjoying fairly uniform conditions in its circumpolar habitat. That their lines of cleavage are very ancient we know from the indisputable evidence of the egg. And we need not even predict any acceleration of the rate of change in the evolution of the Alcine egg. The presumptions are all against it. The eggs of the *Spheniscidae*, the Penguins, do not vary save in size and shape, as much as do the eggs of Auklets and Dovekies, respectively. The eggs of the *Procellariiformes*, a most ancient order, offer only the feeblest variation in color, a tinge of primitive red, repeated alike in Albatross and in Petrel but not in Shearwater; and they offer only one (very dubious) departure from the singular number. Every

analogy points to the fact that geological epochs separate the Rhinoceros "Auklet" from the Guillemots and the Murrelets and the Auklets proper, which some authorities would tumble together into a single sub-family. We have in the Alciformes the prettiest example of the evidential and definitive value of the egg—an example which is as unimpeachable as it is significant.

Relying, then, upon the uncontradicted oölogical evidence, we distinguish five families of the Alciformes; and inasmuch as we are relying upon the egg characters alone, we take the liberty to make them diagnostic for each family, leaving to the anatomist the task of reconciling his conclusions, or of taking issue according to his appraisal of the evidence.

The critical material upon which this diagnosis is based comprises representations of nineteen species and two subspecies of the Alciformes in the cabinets of the Museum of Comparative Oölogy. Ten species, viz., *Ptychoramphus aleuticus*, *Brachyramphus hypoleucus*, *Synthliboramphus antiquus*, *Cepphus columba*, *Uria troile californica*, *Uria lomvia arra*, *Alca torda*, *Lunda cirrhata*, *Fratercula arctica arctica*, and *Cerorhinca monocerata*, are represented in considerable series. This material is supplemented by the definitive plates of seven eggs of *Alca* (*Plautus*) *impennis*, appearing in *Oötheca Wolleyana* (Vol. II, Plates XIV-XXI, pp. 364-384); and the excellent illustrations of the eggs (one each) of *Æthia pygmaea*, *Brachyramphus marmoratus*, *Brachyramphus brevirostris* and *Fratercula arctica naumanni*, in Bent's recent mono-



Eggs of *Lunda cirrhata*

A general comparison of the eggs of the Tufted and Horn-billed Puffins

Case XVII, 34, Annex

Eggs of *Cerorhinca monocerata*

Case XVII, 33, Annex

graph (Life Histories of North American Diving Birds, U. S. N. M. Bulletin 107, 1919). All that lacks, then, of completeness in this apparatus, is eggs of *Cepphus* (*Pseuduria*) *snowi*, *Brachyramphus perdix*, and *Synthliboramphus wumizusume*, and these, all belonging to well-known genera, may be presumed to conform to the established types.

Order **ALCIFORMES**.

Family **Æthiidae**, Auklets.

Subfamily **Æthiinae**: **Egg**: Shape: ovate or short ovate, rarely oval, but usually with little end well rounded. Color: pure white, or pale bluish white, without trace of previous or "reminiscent" pigmentation. Texture: closely matted or slightly granular, without luster. Number: singular.

Ptychoramphus aleuticus (Pallas), Cassin's Auklet.

Phaleris psittacula (Pallas), Paroquet Auklet.

Æthia cristatella (Pallas), Crested Auklet.

Æthia pygmaea (Gmelin), Whiskered Auklet.

Æthia pusilla (Pallas), Least Auklet.

Comment: The eggs of this group are quite uniform in appearance, fairly con-

sistent within the family, although the egg of *Phaleris psittacula* is more granular in texture than those of its consociates. While the color in this group is primitive, shape and texture are considerably evolved (or depart widely from the reptilian type).

Subfamily **Allinæ**: *Egg*: Shape: ovate or mildly elongate ovate. Color: pale blue or greenish blue, unmarked. Texture: close, matted, without luster. Number: singular.

Alle alle (Linn.), Dovekie.

Comment: In this single instance I have allowed well-recognized structural distinctions (as, for example, the presence of one carotid artery instead of two) to weigh in appointing the Dovekie a separate place. On the evidence of the egg alone one would not think of trying to distinguish two subfamilies of the *Æthiidae*.

Family **Cepphidæ**, Guillemots.

Egg: Shape: ovate, little end variable, but only rarely sharply pointed. Color: grayish white, pale greenish, or bluish white, boldly but moderately or sparingly spotted and blotched with brownish black, and with "shell markings," underlaid pigments, of purplish gray. There is a tendency toward convergence of spots in a loose ring about the larger end, or the formation of a cap of color; but quite as often the spots are almost uniformly distributed. Texture: mildly granular or matted; luster slight. Number: plural, two or very rarely three.

Cephus grylle (Linn.), Black Guillemot.

" *mandti* (Mandt), Mandt's Guillemot.

" *columba* Pallas, Pigeon Guillemot.

" *snowi* Stejneger, Snow's Guillemot.

" *carbo* Pallas, Sooty Guillemot.

Comment: The eggs of this group are of a distinctive and singularly uniform type. There is no oölogical evidence of generic distinctions within the group. If I am correct in a surmise that shell markings, i. e., more or less deeply imbedded pigments, are indicative of great age in pigmentation, then the eggs of the *Cepphidæ* form a narrow, well-established type without close or even predicable affinities with other Alciformes.

Family **Alcidæ**, Auks and Murres.

Egg: Shape: ovate, elongate ovate, or ovate pyriform, more or less sharply pointed—the extreme examples of straight-sided tapering eggs are furnished by this group. Color: Highly diversified and individually variable. Within this group the very tendency to vary has been exploited to the utmost, to the manifest advantage of highly gregarious, monotokous species. In general, the ground color is grayish white, but in the genus *Uria* the ground color runs a gamut of pale grays, gray-toned blues, and greens. The markings are chiefly and typically rich browns and brownish, or, rarely, bluish blacks; but in *Uria*, again, there is great diversity, and oil greens, sepias, dull purples, or even hematite reds come into play. The markings are primarily spots and blotches with tendency toward formation of an annulus, or cloud-cap, but in *Uria* the entire gamut is run between immaculate specimens and those buried in color. Texture: coarsely or finely granular, or matted; luster dull. Number: singular.

Uria troille troille (Linn.), Murre.

" *californica* (H. Bryant), California Murre.

" *lomvia lomvia* (Linn.), Brunnich's Murre.

" *arra* (Pallas), Pallas's Murre.

Alca torda Linnaeus, Razor-billed Auk.

Plautus impennis (Linn.), Great Auk.

Comment: In spite of the bizarre departures in color which the Murre's eggs exhibit, it is always possible to duplicate Alcine types from Murre's eggs. A norm is thus easily established, and the relationship between *Uria* and *Alca* is very close.

Family **Fraterculidæ**, Puffins.

Egg: Shape: ovate to elongate ovate, often more or less sharply pointed. Color: dull white, usually with more or less deeply imbedded shell-marking of pale lavender or purplish gray, the color in fine pattern oftenest appearing as an indistinct ring about the larger end. Texture: finely granular, or slightly fused; luster dull. Number: singular.

Cerorhinca monocerata (Pallas), Horn-billed Puffin.

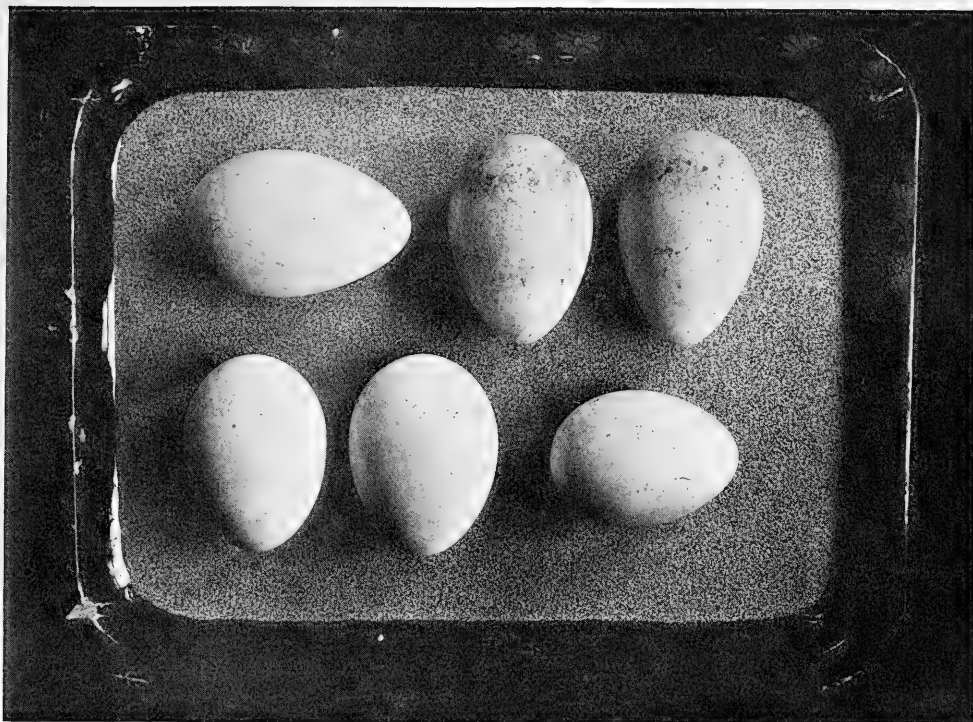
Lunda cirrhata (Pallas), Tufted Puffin.

Fratercula arctica arctica (Linn.), Puffin.

" *naumanni* Norton, Large-billed Puffin.

" *corniculata* (Naumann), Horned Puffin.

Comment: The outstanding offense of the older classification is the oversight, or the wilful disregard of the evidential value of the egg in the case of the Rhinoceros "Auklet"; yet the evidence is absolute. *Cerorhinca monocerata* is a Puffin. Its eggs are indistinguishable from those of *Lunda cirrhata*. And there is not in the



An Exact Comparison

Numbering from the upper left-hand corner, Nos. 1, 2 and 4 are eggs of the Rhinoceros "Auklet," *Cerorhinca monocerata*, while Nos. 3, 5 and 6 are eggs of the Tufted Puffin, *Lunda cirrhata*.

case of *C. monocerata* a scintilla of structural evidence in favor either of its union with the *Æthiidae*, or its removal from the *Fraterculidae*. Some one started the trouble by calling this poor creature an "Auklet," and the rest followed by rule of thumb and in spite of evidence which fairly shrieks for attention.

It is conceivable, of course, that there should have been in the case of a hypothetical Auklet, through the development of the burrowing habit, a degeneration of color roughly parallel to that occurring in the ground-haunting Puffins; but only in the case of this "Auklet" has an established connection with other open-nesting birds having heavily marked eggs, or else other hole-nesting birds whose eggs exhibit degenerate or reminiscent pigmentation been made. But the *Æthiine* Auklets exhibit neither of these characteristics, and the claims of relationship between *Cerorhinca* and *Æthia* are grotesque. Moreover, the parallelism between the retrogression of *Lunda* and *Cerorhinca* is too close to be anything but genetic, or rather, phylogenetic. It is not merely that their eggs agree in shape and texture, or in the fact of exhibiting reminiscent markings. The very patterns of the older color, when clearly revealed, **exactly agree**. There is the same fine scrawling of lavender and faded brown of an otherwise unique type, with the same tendency to confluence in a sharply defined ring about the larger end. That this coincidence should not indicate a phylogenetic relationship, and that a most intimate one, is contrary to all the traditions of oölogy and all the sanctions of science. Yet so far as I have seen, there is no recognition of the fact in literature, beyond the quiet assumption of Dresser's "Manual."

Family *Synthliboramphidae*, Murrelets.

Egg: Shape: elliptical ovate. Color: ground color various, chiefly neutral tints, cartridge buff, pinkish buff, ivory yellow, pale greenish (*B. marmoratus*), more rarely dull whitish or even snuff brown, finely and rather uniformly spotted and marked, or heavily sprinkled and blotched with browns, brownish blacks, and purplish blacks. Texture: close, finely granular, or **matte**; luster not high, but more pronounced than in any other family of the Alciformes. Number: plural; normally two, but occasionally only one.

Synthliboramphus antiochus (Gmelin) Ancient Murrelet.

" *wumizusume* (Temm.), Japanese Murrelet.

Brachyramphus marmoratus (Gmelin), Marbled Murrelet.
 “ **brevirostris** (Vigors), Kittlitz's Murrelet.
 “ **perdix** (Pallas), Partridge Murrelet.
 “ **hypoleucus** Xantus, Xantus's Murrelet.
 “ **craverii** (Salvadori), Craveri's Murrelet.

Comment: The family **Synthliboramphidæ** presents another sharply distinguished and fairly homogeneous type of egg, of which the most characteristic mark is the elliptical ovate shape. The submerged markings indicate a considerable antiquity, but there is no evidence of actual loss of color through troglodytic habit, unless, possibly, in the lighter ground shades of **S. antiquus**. There is a dull white, **unmarked** set of this species in the M. C. O. collection. So far as known the eggs of **B. hypoleucus** and **B. craverii** exhibit much the liveliest variation; and a marked tendency toward annular coalescence, or cloud capping, in the case of these species alone, would go to support Oberholser's contention of a subgeneric evaluation for **Endomychura hypoleucus** and **craverii**, or even a generic distinction (**Micruria** Ogilvie-Grant).

Of course the assignment of family rank to each of these five groups of Alciformes would be pure assumption, if only the order Alciformes itself were known. There is little corroborative evidence in our structural determination to suggest such phylogenetic disparity. But we are following authoritative analogies drawn from other groups where known structural differences of familiar, or even subordinal, rank are confirmed by oölogical differences much less marked than these which appear among the Alciform groups. Indeed, in all sobriety, there is not another non-Passerine order whose oölogy is so diverse as that of the Alciformes. The eggs of Cormorants (**Steganopodes**) and Herons (**Herodiones**) differ less than do the eggs of the true Auklets (**Æthiidae**) and the Auks (**Alcidae**), and the eggs of the Rails (**Rallidae**) and Cranes (**Gruidæ**) less than those of Guillemots (**Cepphidae**) and Murrelets (**Synthliboramphidæ**). Yet the illustrations offered are by some authorities referred to distinct orders, and by none are afforded less than subordinal rank. The authority of a revision of the Alciformes based upon egg determination is, I believe, beyond question.

GAPS IN OUR KNOWLEDGE OF EGGS.

By A. C. Bent.

These brief notes are written, at the request of Mr. Dawson, with the intention of calling the attention of oölogists to certain species of birds, on the North American list, whose nests and eggs have never been found, or about whose nesting habits so little is known as to make the need of further information especially prominent. The author does not pretend to “know it all” about American birds' eggs, but his extensive investigations, in his efforts to gather information for the Life Histories of North American Birds, have probably brought to light most of our knowledge on the subject. Any further knowledge, hidden in private note books, collections or publications, which are unknown to him, would be gratefully received as a valuable contribution. Also it is hoped that these notes may serve to stimulate explorers and naturalists to be on the watch for and to report any new facts discovered, which may help to fill in the gaps in our knowledge. Unfortunately eggs usually do not identify themselves; in most cases the value of an egg, as a scientific specimen, depends almost wholly on the care exercised by the collector in identifying it with certainty, on his integrity and ability as an ornithologist and on the honesty of those through whose hands it has passed since it was collected. There are many eggs in collections, probably some in every collection, which have been wrongly identified through carelessness, ignorance or even intentional fraud. In writing his Life Histories and in these notes the author has attempted to ignore all such specimens, but he may have been mistaken himself in some cases. The following list is given as only tentative; it is open to criticism and invites suggestions. It will be continued as the author's investigations progress.

Whiskered Auklet **Æthia pygmæa** (Gmelin).

There are two eggs in the collection of Mr. Charles E. Doe, of Providence, R. I., which are supposed to be of this species. One of these appears to be authentic: it came through Ward's Natural Science Establishment and was obtained by Professor Ward on his visit to Japan. It was collected in the Kuril Islands, where this species is known to breed abundantly, but no further data came with it. This is apparently the only egg of this species in this country. This species breeds from the Commander Islands westward and northward to Kamtschatka and southward towards Japan. It is said to breed in the central and western Aleutian Islands, but we failed to find it although we were looking for it especially.

Marbled Murrelet **Brachyramphus marmoratus** (Gmelin).

Although this is a common bird all along the coast from northern Washington to Unalaska, a fairly accessible region, its nest has never been found and the only authentic egg in existence was taken by Mr. Geo. G. Cantwell from the oviduct of a bird shot in the Prince of Wales Archipelago on May 23, 1897. It is now in the National Museum collection, No. 28,473, and is figured in the Life Histories of North American Diving Birds. There are two eggs in the National Museum collection, taken in 1866, near Sitka, Alaska, by Ferd Bischoff, which are supposed to be of this species, but there is considerable doubt about them. An egg in Mr. Charles E. Doe's collection, taken by Mr. A. H. Dunham, north of Nome, Alaska, looks authentic, but the locality is far outside the known breeding range of the species and it looks very much as if some mistake had been made. All other supposed eggs of this species which have come to the author's attention seem to have been wrongly identified.

Kumlien's Gull, *Larus kumlieni* Brewster.

This is a doubtful species, which may prove to be only a hybrid, perhaps a cross between *Larus leucopterus* and either *L. argentatus* or *L. thayeri*. Its breeding range is not well defined. It was described from a specimen taken by Kumlien in Cumberland Sound and probably the only authentic egg in existence is one collected by him in that region, which is now in the National Museum. Several sets of eggs, taken by Mr. J. S. Warmbath on Ellesmere Land, are to be found in collections, labelled Kumlien's Gull. It is now well known that the gulls collected in this locality are Thayer's Gull and not Kumlien's.

Nelson's Gull, *Larus nelsoni*, Henshaw.

This is a similar species, but much rarer and even less known than the foregoing. It is larger than Kumlien's Gull, but otherwise much like it. It may be a hybrid between *Larus hyperboreus* and *L. glaucescens* or *L. thayeri*. Its breeding range is entirely unknown, but it is supposed to breed somewhere on the Arctic coast of northwestern North America. Its eggs have never been found.

Greater Shearwater, *Puffinus gravis* (O'Reilly).

There are no eggs of this species in American collections, although there are plenty of eggs so labelled. Much confusion has arisen from the fact that the name "Greater Shearwater" has been applied to, at least, three different species, in different parts of the world, and many dealers and collectors have therefore unintentionally labelled specimens incorrectly. Supposed eggs of this species, said to have been collected in Greenland, are probably intentional frauds; it is now generally admitted that the species breeds only in the southern hemisphere. Eggs from the Azores, Madeiras or islands in the Mediterranean Sea belong to one of the subspecies of *Puffinis kuhli*, which is there called the "Greater Shearwater." Eggs from the Chatham Islands, and other islands in New Zealand seas, are probably eggs of the Sooty Shearwater, *Puffinus griseus*, which is there known as the "Great Shearwater." Our Greater Shearwater, *Puffinus gravis*, is known to breed only on Inaccessible Island, one of the Tristan da Cunha group in the South Atlantic Ocean. Only four eggs are known to be in existence, all of which were collected by Mr. P. C. Keytel in 1908; two of these are in the South African Museum, at Cape Town, one is in the British Museum and one is in the collection of Rev. F. C. R. Jourdain, in England. It hardly seems possible that all of the great hordes of Greater Shearwaters, which roam over the Atlantic Ocean, should nest on one small island. Possibly the main breeding grounds remain to be yet discovered.

Black-capped Petrel, *Æstrelata hasitata* (Kuhl).

The eggs of this rare petrel are entirely unknown or, at least, do not exist in any collections. The bird formerly bred abundantly on the volcanic mountains of certain islands in the West Indies, notably Guadeloupe and Dominica. But serious volcanic disturbances, the depredations of the natives and the destructive work of the mongoose, have apparently exterminated the species on the islands where it formerly bred. There may be a few left on some of the little known islands, but all recent efforts to find them have been unsuccessful.

Scaled Petrel, *Æstrelata scalaris* (Brewster).

Fisher's Petrel, *Æstrelata fisheri* (Ridgway).

These two names, the former certainly and the latter probably, are synonyms of Peale's Petrel, *Æstrelata gularis* Peale, and they should be replaced on our list by the latter name. Several collections contain eggs labelled Scaled Petrel, collected at Preservation Inlet, New Zealand; these are unquestionably eggs of Peale's Petrel, as the parent birds, collected with them, are referable to *Æ. gularis*.

Kaeding's Petrel, *Oceanodroma kaedingi* (Anthony).

According to the latest classification of this group of petrels the above name is restricted to the small southern form and the name, *O. leucorhoa beali* Emerson, is applied to what we have heretofore called *O. kaedingi*. The breeding grounds of the small southern form, which probably breeds south of the United States boundary, have never been found. There is a possibility, however, that *O. kaedingi* may have been confused with *O. socorroensis*, as their relationships are not yet fully under-

stood. If we accept the latest classification, then, the eggs of Kaeding's Petrel are unknown.

Labrador Duck, *Camptorhynchus labradorius* (Gmelin).

The eggs of this extinct species are, of course, unknown. But there is an egg in the collection of the late Mr. William Brewster, which is probably a Labrador Duck's egg. It came in a very old collection made in the region where this species supposedly bred; it is evidently a duck's egg, but it can not be satisfactorily referred to any other known species. It has no scientific value, but is an interesting specimen.

Blue Goose, *Chen caerulescens* (Linnaeus).

The breeding grounds of the Blue Goose have never been found and the nest and eggs, in a wild state are unknown. This is an abundant bird in its winter range on the coast of Louisiana and is common enough on its migrations along the coasts of James Bay and Hudson Bay, but where it goes in summer, beyond that, is pure speculation. It is strange that none of the Arctic explorers have ever found its summer home. It has been suggested that it may breed in the unexplored interior of Ungava or in northeastern Labrador. But, as all the other geese of this genus nest in the far north, it seems more likely that this species will eventually be found breeding in Baffin Land, where there are vast unexplored areas.

Ross's Goose, *Chen rossii* (Cassin).

This is another species, well known in its winter range in California and on its migrations, but with an entirely unknown breeding range and unknown nest and eggs. It seems to disappear entirely in summer and probably breeds somewhere far north in the Arctic archipelago, perhaps in Victoria Land or Banks Land, both of which are largely unexplored. Arctic explorers should keep a sharp lookout for this and the foregoing species.

American White-fronted Goose. *Anser albifrons gambeli* (Hartlaub).

It has recently been demonstrated that there are two distinct races of the White-fronted Goose in North America and that, strangely enough, the commonest one, and the only one of which the nest and eggs are known, is the European White-fronted Goose *Anser albifrons albifrons*. This is the smaller of the two races and the one that breeds in northern Alaska. Apparently all the eggs in American collections are referable to this subspecies. This leaves the larger race, American White-fronted Goose, *Anser albifrons gambeli*, unrepresented in American egg collections. Its breeding range is unknown, except that it is said to breed in Greenland. The author would be grateful for any information regarding the breeding range of this large race or for data and measurements of any eggs of this species collected in Greenland, or in the eastern Arctic regions.

THE ETHICS OF EXCHANGE.

By J. Hooper Bowles, Tacoma, Wash.

When the nesting season is over, with its innumerable fascinations of the woods, fields and waterways, there comes to many of us another season that is different, but still of the greatest interest. It is the time when we sort over our trophies and set aside the surplus that we do not actually need for our own collections. In other words the time has come when we use this surplus to exchange with our correspondents for sets of their take that we need to fill some long-felt want in our cabinets. Personally, I do not buy or sell specimens, and I often wonder if those who do so can feel as keen a satisfaction as we do when we have sent out some hard-earned rarity and received in return some oölogical gems which we had almost given up hope of ever obtaining. It is not the ones that come easiest that give us the most pleasure, no matter whether personally taken or sent in by exchange.

The editor has asked me to give my views on this subject, and the above remarks form a sort of foreword for some of the things I have learned in more than twenty-five years at playing the game of exchange.

To begin with, an exchange is, or should be, quite as much an exchange of courtesies as an exchange of specimens, and to this end we should first of all be extremely careful in the selection of the material that we are going to send out. Never send out any nest or egg that you would not be glad to have your correspondent pick up and show to some friend, with the remark, "This was sent me by Mr. X., and I advise you to send him your list," for if your specimens are imperfect you well know that such a remark will never be made. It sometimes happens that in some exceptionally rare set one of the eggs will have a slight imperfection, yet the set is so rare that many collectors would be only too glad to get it in order to have the species represented in their collections. If you do send out such a set be sure to put full details concerning the imperfect egg in your data blank, and do not be satisfied with merely telling your correspondent about it in advance. I advise strongly against sending out such a set as a general practice, however, as it may pass out of his hands

without quite sufficient explanation and you are likely to get the very unenviable reputation of being a disposer of "culls." This expression "culls" means eggs that are badly soiled, or with large holes, nicked holes, or otherwise not quite right, and many a possibly sincere friendship has been prematurely nipped in the bud by the sending out of such specimens.

Another important feature is in packing your specimens for shipment. This article is not intended to be a primary school lesson, but it is a fact that altogether too many of our experienced collectors insist upon sending their specimens in tin boxes, or in wooden boxes that are too small or insufficiently braced. Never use a tin box to ship eggs in, under any consideration, as it is very easily crushed in, and a cigar box without proper bracing is just exactly as bad. Use either a good strong wooden box, or a cigar box with a brace in each side and an upright in the center to prevent the cover from being crushed in. Also use plenty of cotton in wrapping the eggs, as the vibration caused by a sharp rap on the outside of the box has been the ruin of many a good set. In other words, the old saying, "An ounce of prevention is worth a pound of cure," applies to very few things so forcibly as it does to packing eggs, and it is almost heartbreaking to think of the number of rare sets that have been lost through the lack of just a few minutes time and effort before packing. "But what has all that got to do with the ethics of exchange?" someone may remark. Perhaps nothing, but it is nevertheless a fact that the impression made upon your correspondent is an unpleasant one if he opens a box containing some long desired set, only to find one or more of them smashed. Also, his opinion of you will descend at a greatly increased ratio, more especially if it is your first correspondence together.

The custom of extending credit in exchanging is another matter that requires far more attention than is given it by many collectors who indulge in it. I have a number of correspondents with whom I have used the credit system for years, with the account seldom being balanced. Sometimes it will find me as the creditor and sometimes my friend, but neither of us is worried a particle whichever way the balance stands. At the same time a few little particulars should be very carefully observed. A man may send you a hundred dollars worth of sets with the remark, "If you have not the sets I want now, you are fairly certain to balance the account next season, or the season after. There's no hurry." And he means just what he says, but at the same time, when next season has rolled by it pleases him to have you send him a list of what sets you have for exchange. It hardly matters at all whether there is anything on it that he wants, but what he does want and has every right to expect, is to have you show that you have had the matter in mind and have done your best. You may think to yourself that you know you have nothing he wants, so there is no use in bothering him with your list. But that has nothing to do with it, as all he really wants under the circumstances is just that little act of courtesy, for he knows perfectly well that you will "try to do better next time." There have been more than a few friendships severely strained by neglect which might so easily have been obviated.

The credit system might easily occupy an entire article by itself, but let us now turn to another very important feature in the great game of exchange that is painfully neglected by a surprising number of our best collectors. This is the failure to acknowledge the receipt of a box of specimens. There are one or two collectors who send me some of the very best additions that come to my collection each year. They always send their sets first and always let me set my own terms of exchange, never making a question or remonstrance of any kind. Could any more nearly ideal conditions exist? Yes, there could, because they do not acknowledge the sets that I send them in return, unless it may be in the following year when possibly they ask for another set of the same kind that shows a good variation. The reason for this neglect is because they take it for granted that I know my specimens will be satisfactory. However, apart from the satisfaction of knowing that our sets have arrived in good condition, have we not all a little streak of conceit tucked away in us somewhere? Most certainly we have, and, after we have selected some especially rare or handsome set that we have prepared with tiny holes, it surely tickles that streak of conceit to have your correspondent write and tell us what a good job we made of it. Why, even your hunting dog likes a couple of pats on the back and a word of praise when he has done some especially clever piece of retrieving, and in return he will almost work his legs off in trying to duplicate or better his performance.

There are many other features that might be taken up, but I feel that the amount of space allotted to me is rapidly nearing an end. In closing I should like to answer a question that has been asked me more than once, and doubtless most of us have been asked the same thing: "Your collection is beautiful, but you never sell any, so what real good is it to you excepting to look at? Has it not been something of a waste of time? A lover of the great outdoors would never ask such a question, so our answer must be something rather more material, and my reply is this: "The game of eggs and egg exchange has brought me most of the best friends that I have ever had, or ever expect to have, and I believe that these friends have the same sincere feeling toward me that I have for them. No. I consider it to have been very far from a waste of time."

THE OÖLOGICAL OUTLOOK.

An Editorial Review of Conditions and a Forecast for 1920.

The "splendid isolation" of the collector of birds' eggs is passing, along with national prejudices, exterritoriality, protection and discriminative tariffs. The collector can no longer do as he pleases, for the world pleases to know what he is doing; and he, in turn, is pleased, or should be, to know what his fellows are doing. While it is true that no official clearing-house of oölogical information and exchange has yet been established, it is also true that any fairly competent collector may discern the signs of the times, and any student of affairs, however humble, may see how general conditions are bound to react upon the science which we hold in regard. The writer hopes he may be pardoned, then, for the presumptuous task of descanting upon world conditions; and he promises to take refuge in imposing generalizations whenever (in common with all other workers in this unorganized field) he may find himself lacking in precise knowledge. The clearing-house report of the transactions in Oölogy for the year 1919, will never be written. It is a purely hypothetical book. But such a report may appear, say, for the year 1929. In the meantime we will test the air and try to map out some of the main currents.

The year 1918 has been characterized by an extraordinary revival of interest in collecting and in all matters oölogical. Collecting togs have been overhauled, the dust has been wiped off cabinet drawers, exchange lists have been drawn up; and, last but not least, beautiful promises have been made for the new year. The more ambitious of us are already a dozen times in debt to our friends, and the air is surcharged with expectation. What does it mean?

Well, it means for one thing that the hope has been raised that we may be justified in taking our hobby more seriously. New claims have been advanced about the importance of oölogical study, and we are eager to test them out. If this is not a false alarm, if we no longer have to conceal or dissemble and apologize for this strange "malady" which overpowers us season by season, then are we the happiest of mortals. We will away to the woods and lay in ammunition for this fascinating game which a few of the standard bearers dare call science.

But the most obvious occasion for this revival of interest in "birds' eggs" is the release of energies set free by the armistice. The fellows who got in late and were only waked up by the fight want to see the world while they are at it; and so they are going to invade Africa and Amazonia and the Arctic North in quest of whatever offers. Those who, more involved, want to forget the horrors of war, seek solace in the things of nature, or bury themselves in the absorbing pursuit of their hobby. Those who were cheated of indulgence for cruel years, are going to make up for lost time. And who shall say that those who did their bit and then did it over again, have not earned the right henceforth to a perpetual springtime? This is as it should be; and thank God for something more fascinating than chess, more active than tennis, and more worth while than golf, or a dozen other mockers of the dial. The year 1919 was a great year, and 1920 will be a greater, for collectors.

The year 1919 witnessed the dawn of Internationalism in birds' eggs, as in everything else. Internationalism is having a slow birth, and the American midwives are trying to drug it with old methods or to frighten it back into the womb of time. But International Confidence is a lusty child, and the very midwives will boast to their children's children that they officially welcomed it. For henceforth men are going to think increasingly in terms of the whole. The meaning of life, as of society, will be found in the whole and not in the parts. We are going to find each other the world over, and **get together**. In particular the Anglo-American rapprochement, or call it **reunion**, is for me, the most heartening thing in the collecting world. I wouldn't take a fortune for what I already know of the capacity and courtesy and likability of correspondents in England and Scotland and Ireland (yes, Ireland!), and India and Australia. Here is solid meat, and if it took the crucible of war to make us find each other again, why, then, thank God for war.

And a brighter hope tinges my faith—that the zeal of a common passion shall fuse still more reluctant people into a common metal; for it is the cunningly compounded alloy which gives forth the sweetest tones. Grandidier, van Pelt Lechner, Fernandes, Dabbene, Kuroda—we need such "sweeteners" as they to make the ideal fellowship. Whatever the treaty tinkers make out, we know that Science, like Religion, or like Nature herself, is supernatural and superracial.

A fourth element of hopeful significance in the present prognosis is the achievement of conservation. We say "achievement" advisedly, although the word strictly relates to America and England alone; for we are conceited enough to believe that whatever is really achieved there is potentially achieved elsewhere. The conserva-

tionists, the "Audubonites", got all they went after in securing Federal control of migratory birds. We are heartily glad they did, both because Federal control is a good thing in itself, and because the atmosphere of conservational effort was a little stifling for other interests just as real, if a little less important. It is an open secret that some of the reformers, not the leaders, in their zeal for protection held the claims of science too lightly, or else scouted them outright in a passion of intolerance. That painful time is happily over. These good people have got what they want—what we all want, indeed—and the children, once rebuked for stealing birds' eggs, have been recalled from the closet and charged not to take more than necessary. "All right, mother, dear. Come on, Bud."

Besides that of moderation, two other lessons have been learned—or have they been learned?—from our association with conservationists. The first lesson is that the just sentiments of bird-lovers are opposed to the commercializing of "oölogy." This is a large and complex matter, and discussion of it must be reserved for another place. I do not mean to condemn "dealers" as such, those few whose work really takes rank as science; nor would I forbid the purchase and sale of eggs within certain narrow limits; but unless collectors have learned by now that science and sentiment alike are against the exploitation of this field, they are blinded by selfishness and they have learned very little. In the definite establishment of a theoretical exchange value in place of a cash value for American birds' eggs, we feel that the Committee of Twenty-five, appointed to prepare a revised list of American birds' eggs, have won both a moral and a tactical victory.

From the conservationists also we have learned the authority of public opinion. Anyone who thinks henceforth that he can defy public opinion, or "do as he pleases," is out of his proper environment. He should join the recluse of Amerongen forthwith. The public deserves, as it demands, our confidence. The fundamental article in the creed of a democrat is the right of the public to understand. To be sure, bird-nesting is a business no more to be conducted in the glare of a spot-light than is deer hunting or courtship; but the reasons for it may be as clearly understood and as graciously approved. The man who rouses a whole countryside in quest of a bird's nest is a pest, of course; for he starts unguided forces of destruction. But another who works under cover of darkness, or who defies a countryside intent upon the protection of a certain species, is a worse pest, for he offends the public and discredits his profession, or his hobby, besides. It is an easy matter to persuade the public of a just cause, and persuasion is more just as well as more comfortable than either apology or evasion.

The agitation in favor of conservation has left us with another legacy more important than any of the foregoing. It has taught us that the things of nature belong to the public, and that the possession of these things must justify, or render an equivalent in service. This is the square basis of the modern preference for public museums. The private ownership of material which came from the public and which, therefore, belongs to the public, is an anomaly over which an enlightened democracy is increasingly restive. Time was when the hoarder of gold was flattered and envied. Now, since the public need has come to the fore, such an unsocial person is unsparingly condemned. In time of plenty we heard naught of hoarding food, but now the "profiteer" is justly acclaimed our worst enemy. In like manner, now that we are taking account of our public resources, the trees, the waterfalls, the brooks, the birds, we demand that the would-be, or self-acclaimed, owner shall give a reasonable equivalent in service for the custody of these things. This is good democratic doctrine, and it is the faith upon which all public, and some private, museums are founded. It is the creed of the hour.

But it is easy to indulge a doctrinaire exaggeration of the evils of private ownership in birds' eggs. As matter of fact, there is far greater danger, in America at least, of **irresponsible public ownership**. The pathos of the ardent, highly qualified private collector who, at the approach, near or remote, of the grim reaper, casts about for some likely institution upon which to confer his precious hoardings—the pathos, I say, of this oft-repeated tragedy is indescribable. The recipient, it may be, is his alma mater, an institution which boasts a modest museum in connection with its zoölogical department; or it is the local natural history society, which already has a collection of fossil clams, badly stuffed gazelles and ancient brocaded slippers—the last, of course, under the head of anthropology. Or, most fortunate of all, he bequeathes his oölogical wealth to some Great Museum, a museum whose palaeontological treasures, or it may be conchological collections, are known the world around. In either case the result is apt to be the same. The zoölogical professor of alma mater, or the curator of the local junk-pile, bows obsequiously and assures the generous donor that a special case will be provided for his offering. It is; and the eggs are set out under glass in orderly fashion and exposed to the full light of day. Or the Director of the Great Museum refers the disposition of the Robinson Collection of birds' eggs to his subordinates, the curators of ichthyology and entomology, respectively. These learned gentlemen heave a sigh, regretting the unfortunate lack of space, and they pack away the egg collection in the steenth corridor of the fourth

wing—where diligent and persistent urging on the part of the donor's grandchildren may discover the same under an ancient accumulation of dust.

The dolessness and helplessness of perfectly well-intentioned donors in picking out perfectly well-intentioned but perfectly unqualified recipients for their life collections is a sight to make angels weep. Only this last week the writer entertained a busy man of affairs, who had been privileged to spend many years in an oriental country, and who had accumulated perhaps the finest collection of birds' eggs ever gotten together in that country. But because of increasing cares, and *pro bono publico*, this gentleman had donated his life collection to one of the largest museums of our land. And, as he told me, "**they never even thanked me for it.**" The chagrin and humiliation depicted upon this man's face as he recalled how his life offering had been scorned, was something pitiful to see. As matter of fact, as I am informed upon the highest authority, not a dozen people a year ever ask to see the birds' eggs in the institution named. Better, a thousand times better, is intelligent private ownership, with glimpses to inquiring friends, than the virtual oblivion of certain public museums.

It is in view of this well-known and intolerable situation that the Museum of Comparative Oölogy has dared to propose a co-operative enterprise. We believe that we are dead right in the claim that in the special field of oölogy, only the completest system of co-operation will achieve a complete demonstration and vindication of oölogy as *science*. We believe that the time is ripe for such co-operation. As matter of fact, we have "tried the air" in this regard, and we are thoroughly satisfied with the direction of the wind. Our proposals have been ratified by some of the most responsible leaders of oölogical thought, and they have been endorsed by responsible exponents of field practice. Our prediction is that where a score or so stand pledged today, the year 1920 will treble the support of the co-operative idea. The pride of common ownership, a heart-warming and generous pride, will reward the efforts of co-operative contributors. The glory of social achievement will seize the imagination of the timid and the isolated, and the joy of fellowship will displace rivalry and confusion, as certainly as Lake Tahoe gathers to her calm breast the tumultuous activities of a thousand torrents.

Perhaps this vision bears a suspicious resemblance to that of Joseph—Joseph, who first saw his brethren as sheaves and then as stars making obeisance to him. But those who so conceive our claims miss our point, just as the brethren of Joseph did—at first. For without pausing to note that Joseph made good in his assumptions, we hasten to observe that that which resulted was twelve brethren working together, a united Israel, the most enduring historical monument, as well as the most useful and capable people which the ages have left us. The writer cares not whether you name him Joseph or some other leader more worthy. The point is that the co-operative idea will **succeed**, and it is the only idea which will succeed, whether in museum-building or business-building or empire-building. The writer predicts, then, with the utmost confidence that the **idea of co-operation** now lodged will **work** during the season of 1920.

THE SIGNIFICANCE OF THE UNUSUAL.

In an excellent article entitled "Egg Collecting and Its Objects," which appeared in the November "O. E. & M." from the pen of E. C. Stuart Baker, Esq., the Honorary Secretary of the B. O. U., the author stresses the importance of collecting normal egg material, and deprecates attention to rare varieties and abnormalities. In particular, Mr. Baker says, "Uncommon types of eggs, or clutches of eggs, are in themselves useful only in that they show the extreme of variation we must expect and allow for before we lay down hard and fast rules upon our scheme of coloration, but we must not base our conclusions upon them." This admonition may have practical value for collectors of limited opportunities or of limited cabinet space; but in laying it down as a guiding principle of the science, it seems to me that Colonel Baker has missed the priceless **phylogenetic** significance which unusual types sometimes possess; for somewhere among the sum of all existing abnormalities, or "freaks," there are sure to be a few **reversions to type**. In some cases the significance of this evidence may be instantly detected. For example, the M. C. O. has in its cabinets an egg of the American Robin, or Migratory Thrush, *Planesticus migratorius*, which is sharply and profusely spotted with hazel. Without doubt this outbreak of red pigment recalls the time when the ancestral Robin laid red-spotted eggs, just as the *Hylocichline* and *Ixorean* Thrushes, and a dozen besides, do today. This "freak" egg, possibly unique among a hundred thousand of its unspotted fellows, is of the utmost significance in confirming our belief, not alone in the Turdine affinities of *Planesticus*, but in the **priority** of the red-spotted type among *Passerine* eggs having blue grounds. It is an irruption of the primitive and not merely a "limit of variation."

To take another example. A set of two eggs of the Brewer Blackbird (*Euphagus*

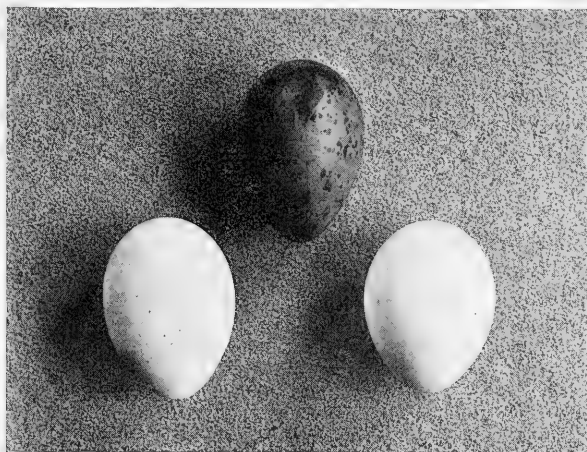
cynocephalus), taken by a member of our party last May at Bishop, California, comprises two utterly distinct missing links, or reversions. One is almost the exact counterpart of the normal egg of the Quiscaline Grackles. The other would almost pass for the egg of an **Agelaius**. There is the same delicate green (pale glaucous green) background, with sharp spotting of purplish black, and development of coronal ring. It is worthy of remark in this connection that freaks, and those of quite diverse significance, often occur in conjunction. It is as though certain parents gave way before the struggle of conflicting ancestors and humored each in turn. Such fortuities are the very open sesames of the doors of phylogenetic research.

Another example from the same drawer is that of an egg of **Agelaius tricolor**, normally palest glaucous green, or lichen green, yet in this case buried in a snuff brown smudge—indistinguishable thus from a typical **Euphagus cyanocephalus** egg.

Now if cousinships, or ancestries more or less remote, may be traced by these easily recognizable examples, what shall we say of freaks not so easily recognizable? Shall we say that they are without significance? May they not be even more highly significant? May they not, in fact, rehearse ancestries so remote that we have lost the clue? And if so, where shall we find the clue, save in these delectable "freaks" which nature has appointed for the guidance of the inquiring mind? Collect normal types; yes. But for heaven's sake don't discard the unusual as being unwieldy or beside the mark. These are; rather, choicely feathered arrows aimed unerringly at distant targets. It is for the winnowing and the selection of these that the M. C. O. is most solicitous.

THE MOST SIGNIFICANT EGG IN THE WORLD.

Of course that is a "scare head," meant to arrest attention. There may be other eggs as good or even better; but if so, **they would have to be of the same kind.** The egg in question is that of the Crab Plover, **Dromas ardeola**, kindly furnished us by K. L. Skinner, Esq., the talented editor of the "O. E. M." Now, everybody knows that plovers' eggs, especially those of northern species, like **Charadrius apricarius**, and **Squatarola squatarola**, run very dark in coloration. They are protectively colored, and must match the dark lichens under lowering skies. In fact, the eggs of



A Limicoline Contrast

Upper: Eggs of the European Curlew, **Numenius arquata**

Lower: Eggs of the Crab Plover, **Dromas ardeola**

The values of the delicate reminiscent marks of the left hand specimen are nearly lost in the half-tone.

all other known Limicolæ are protectively dotted and spotted and blotched on neutral ground, and together they represent one of the most uniform of oölogical groupings. Yet here in the egg of **Dromas ardeola**, the Crab Plover, is a vivid exception. Comparable in size to that of a "Whaup," **Numenius arquata**, the egg of the Crab Plover is described as pure white. Nor can there be any question as to the position of the bird, for it has been subjected to the most rigid examination. **Dromas ardeola** is undoubtedly a Limicoline bird, related more or less closely to the Pratincoles. The secret of the white egg lies in the fact that it is deposited, and doubtless has been for ages, at the end of a burrow in the earth of certain islands in the Persian Gulf. We

say it has been for ages. Yes, but how many ages? Was the egg always white? Available literature is silent upon this point. The Catalogue of the Birds' Eggs of the British Museum (1902) recording the sixty-nine eggs taken at various points in the Persian Gulf, says only: "The eggs of the Crab Plover are of an oval form, very slightly glossy and plain white. The shell is slightly rough and granulated, and the interior when held up against the light, is of a pale greenish yellow color. They measure from 2.42 to 2.66 in length, and from 1.73 to 1.85 in breadth. They are abnormally large for the size of the bird." No exceptions in color are noted in this, considerable series. Whereas this "most significant egg," under review, is superficially and sparingly spotted with brownish red, and deeply and profusely spotted and blotched with lavender shell markings. It is a reversion, an atavism; the **missing link** between the immaculate egg of the Crab Plover of today and the curlew-like egg of its, say, Miocene ancestor. And inasmuch as the normal egg of *Dromas ardeola* in itself is the world's most conspicuous exception to apparent phylogenetic rules, the writer claims that this spotted egg, or another like it—I hope there are a dozen such—is the **world's most significant egg**.

It is hardly necessary to add, except for the uninitiated, that eggs habitually concealed from the light, as in hollow trees, crannies, and burrows, tend to revert to the unpigmented condition, the color of pure calcium carbonate. The effect of this process is well known in the case of the Puffins and the Rhinoceros Auklet (which is, of course, a Puffin). The whiteness of Puffin eggs is not quite so well established as is that of Crab Plover eggs, and interesting reversions are not altogether rare. But to disregard such exceptions on the ground that they are not normal, would be to miss the very flavor and zest of comparative oölogy. We are sure that Mr. E. C. Stuart Baker was thinking only of the practical limitations of the private collector when he deprecated attention to abnormalities.

THE HONORARY BOARD OF FOREIGN ADVISERS.

Again the suggestion came from across the water, and the more we thought about it the better we liked it. "An Honorary Board of Foreign Advisers"! Capital! And so we set to work at once, inquiring, corresponding, persuading, until the thing began to take shape. We give the partial list below, although three of the gentlemen approached have not had time to give in their acceptance. We venture to submit the list in the present unauthorized shape in order to receive advice as to countries and regions unrepresented.

In naming a man Honorary Adviser for a given country, it is not at all our thought to ask him to represent the M. C. O. as agent or collector in that country, but only to ask him to stand sponsor for our activities in promoting acquaintance with oölogists in his section, and in securing co-operation. The Adviser also will give us counsel as to the standing of collectors within his purview, and to him we can refer knotty questions of identity or authenticity of material. It is a splendid arrangement and we are honored by the gentlemen who have so far agreed to help us:

Kenneth L. Skinner, Esq., Continental Europe.

William Mark Pybus, Esq., England.

J. G. Gordon, Esq., Scotland, and minor British Colonies.

W. H. Workman, Esq., Ireland.

Rowland H. Archer, Esq., Australia.

Henry L. White, Esq., West Australia and Tasmania.

Colonel E. C. Stuart Baker, India.

B. A. Fernandes, Esq., Bombay Presidency and the Deccan.

Jonkheer A. A. van Pelt Lechner, The Netherlands.

Edward A. Arnold, Esq., Canada.

Dr. Roberto Dabbene, Argentina.

M. Nagamichi Kuroda, Japan.

Rev. Henry S. Caldwell, China.

We are especially solicitous to secure advisers for Spain, Egypt, the Union of South Africa, Manchuria, Russia, Persia, Palestine, Siam, and New Zealand; and any courtesy extended us in this regard will be deeply appreciated.

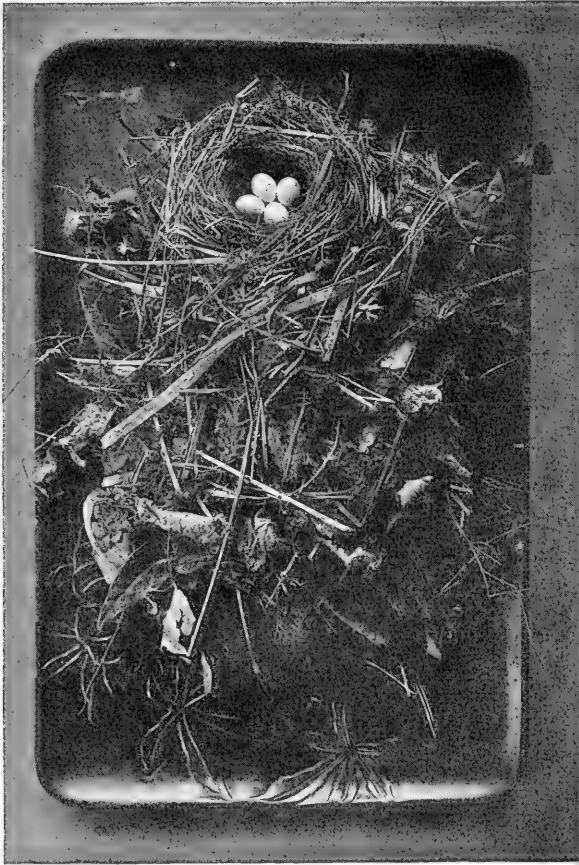
ACCESSIONS AND ACKNOWLEDGMENTS

The Director's report, submitted to the Trustees of the M. C. O. on January 19th, 1920, covered the period January 1, 1919 to December 31, 1919, inclusive, and reported thirty-five general accessions derived from twenty-one sources. These included the

product of the institution's own activities afield, 364 sets, 1410 eggs, all from California; and the income from gifts and exchanges, which was 555 sets, 2001 eggs, of which 421 sets, 1576 eggs, domestic and 134 sets, 425 eggs, foreign—a gross total for the season of 919 sets, 3411 eggs. The Director also reported that an actual count had shown 20,655 eggs on hand January 1st, 1920, together with nests estimated at 2000 (of which 1400 on display).

The detailed account given below covers the period March 1st, 1919 to March 1st, 1920. The brief report of the Museum's own activities is grouped under expeditions rather than accessions, and comment is purely oölogical. The general account of the 1919 field work will be presented in a later issue of the Journal.

March 18-April 25, 1919. Expedition to Santa Cruz Island. Collectors W. O. Dawson and Robert Canterbury participating. Chief results, a small series each of Island Shrike (*Lanius ludovicianus anthonyi*) and Raven (*Corvus corax sinuatus*).



A Well-Collected Nest
Nest and Eggs of the Golden Warbler, *Wilsonia pusilla chryseola*
By E. Raymond Driver

Eggs of the latter average fully as large as those of mainland birds. The claim of *C. c. clarionensis*, therefore, is discredited. Two sets of *Thryomanes bewicki nesophilus* Oberholser, taken.

April 7-16, 1919. Trip to eastern San Luis Obispo County, W. Leon Dawson, assisted by Giles E. Dawson. Chief results a handsome series of eggs of *Pica nuttalli*, together with two nests entire, now installed in the Museum. Also two sets of Prairie Falcon (*Falco mexicanus*) obtained, one of the "white" type, and the other nearly as dark as a Duck Hawk's.

April 26-May 15, 1919. Work about Santa Barbara, chiefly by Dawson, Jr., and Canterbury. The former brings in a set 1/17 of the California Woodpecker (*Melanerpes formicivorus bairdi*), unquestionably the product of a single pair of birds; and the latter a set, n/5, of the Western Lark Sparrow (*Chondestes grammacus strigatus*) of

a heavily mottled and clouded type, the darkest of record. The Lark Sparrows habitually nest in trees hereabouts.

May 16-July 10, 1919. Expedition to Owens Valley, Mono Lake, and the Central Sierras, the Director and assistants W. O. Dawson and Robert Canterbury participating. Notable takes were White-throated Swift (*Aëronautus melanoleucus*), n/4 and n/5; Wilson Snipe (*Gallinago delicata*), n/4; Wilson Phalarope (*Steganopus tricolor*), n/3 and 2n/4; small series each of Brewer Sparrow (*Spizella breweri*), Nevada Savanna Sparrow (*Passerculus sandwichensis nevadensis*), Inyo Slender-billed Nuthatch (*Sitta carolinensis tenuissima* Grinnell), California Gull (*L. californicus*), Wright Flycatcher (*Empidonax wrighti*), Cassin Purple Finch (*Carpodacus cassinii*), W. Ruby-crowned Kinglet (*Regulus calendula cineraceus* Grinnell), and Sierra Nevada Rosy Finch (*Leucosticte tephrocotis dawsoni* Grinnell). Of the last-named W. O. Dawson took the third and fourth examples known to science.

Season 1919. Collector Davis, working independently at Eureka, Humboldt Co., Cal., turns in a series of exquisitely collected nests with sets of the Golden Warbler (*Wilsonia pusilla chryseola*), and such accustomed rarities as Cedar Waxwing (*Bombicilla cedrorum*)—the only nesting colony known in California; and Vaux's Swift (*Chaetura vauxi*).

Accession No. 180.—16 sets, two shipments, from Rowland H. Archer, Esq., of Lyndhurst, Victoria, Australia. Includes sets of Mallee Fowl (*Lipoa ocellata*) 1/3, Brush Turkey (*Catheturus lathami*) 1/2, Bustard (*Eupodotis australis*) 1/1, Emu (*Dromæus novæhollandiæ*) 1/10, Cassowary (*C. australia*) 1/3, and a carefully selected series representing families of the Passeriformes new to the M. C. O. collections. The institution is deeply indebted to Mr. Archer's generosity, and rejoices in his coöperation and counsels.

Ac. No. 181.—96 sets, 297 eggs, from Dr. Blenn R. Bales, of Circleville, Ohio. Dr. Bales has let us have the cream of a season's collecting on the Virginia coast, and his contribution includes a handsome series each of *Rhynchops nigra*, *Larus atricilla* and *Sterna hirundo*, all duly installed in the M. C. O. cabinets on a background of their native sand.

Ac. No. 182.—n/5 Baird Sparrow (*Ammodramus bairdi*) from Dr. Louis B. Bishop. Personally taken and of indubitable authenticity.

Ac. No. 183.—Seven sets, miscellaneous, from K. L. Skinner, Esq., of Weybridge, England. Includes two sets of the Cream-colored Courser (*Cursorius gallicus*), taken on the Island of Fuertaventura (Canaries Group) in the year 1891, when the entire population down to the village priest turned out after these then rarities, and so flooded the market for all time.

Ac. No. 184.—Two sets of Rodger's Fulmar (*Fulmarus rodgersi*), courtesy of Mr. John Hooper Bowles.

Ac. No. 185.—28 sets, misc., chiefly variety selections of Crow, Bronzed Grackle, Vesper Sparrow, etc., courtesy Dr. B. R. Bales.

Ac. No. 187.—Set 1/4 with nest Black-tailed Gnatcatcher, a beauty, courtesy Mr. N. K. Carpenter, now of San Diego.

Ac. No. 188.—Welch's Ptarmigan 1/8, and Tennessee Warbler n/4, courtesy Edward Arnold, Esq., of Toronto.

Ac. No. 189.—119 sets, 493 eggs, in exchange with Lieut. Richard C. Harlow, of State College, Pa. The *pièces de résistance* of this deal were Cape May Warbler n/4 and Tennessee Warbler n/6 on Mr. Harlow's part, and Sierra Nevada Leucosticte n/4 on ours; but Mr. Harlow very generously supplemented the exchange with variety selections culled from some 4000 sets passed in review. Of special note are Black Rail 1/7, Henslow Sparrow n/4, Orange-crowned Warbler n/4, Louisiana Water Thrush 1/7, Olive-backed Thrush n/4 with runt, a handsome Canadian Warbler n/4 of the heavily ringed type, and two magnificent Ovenbirds 1/4 and 1/5.

Ac. No. 190.—Series Socorro Petrel eggs, courtesy N. K. Carpenter.

Ac. No. 191.—Five sets, including Nelson Sparrow 1/5, from Dr. Elmer Langevin.

Ac. No. 192.—Eight sets with nests, kindness Chas. F. A. Ritson, Esq., Wigton, Cumberland, England. The nests, though of common species, are well prepared and sightly. The shipment is of especial interest to us, because it is the first of choice nest material furnished by our British friends.

Ac. No. 193.—55 sets, 262 eggs, on account, courtesy Richard C. Harlow, Esq. Variety sets, chiefly of eastern species. Includes a splendid series of Swamp Sparrows' eggs.

Ac. No. 194.—19 sets from Ayrshire, Scotland, courtesy Mr. William Mair. Includes Rock Pipit (*Anthus petrosus*), Pied Wagtail (*Motacilla lugubris*), and five species of Shorebirds.

Ac. No. 196.—12 sets Song Sparrow and Red-Winged Blackbird, the latter showing a distinct local type. Courtesy Mr. Karl A. Pember, Woodstock, Vt.

Ac. No. 197.—13 sets, 43 eggs, chiefly from England, courtesy Kenneth L. Skinner, Esq. Shipment includes a handsome nest of Chaffinch (*Fringilla coelebs*), made entirely of moss and slender strips of paper waste; and a set 1/4, Chaffinch, of the blue immaculate type. The *pièce de résistance*, of this lot, however, is the marked egg

of *Dromas ardeola*, the Crab Plover, elsewhere referred to in these columns. Our very prettiest thanks are tendered to Mr. Skinner for this valued remembrance.

Ac. No. 198.—*Hoplopterus spinosus* 1/3, and *Rhynchæa capensis* 1/4, from Egypt by K. L. Skinner, Esq.

Ac. No. 199.—4 sets with nests from Dr. B. R. Bales.

Ac. No. 200.—3 sets from the Pribilof Islands by G. Dallas Hanna, Esq. Includes a handsome set, 1/5, of the Aleutian Rosy Finch (*Leucosticte griseonucha*).

Ac. No. 201.—14 sets from India and Egypt by Col. R. Sparrow, advance exchange account. Includes six new Raptors and *Sarcogrammus indicus*.

Ac. No. 202.—7 sets, chiefly Japanese from T. V. Sherrin, Hampton Wick, Middlesex.

Ac. No. 203.—11 sets by Ralph W. Jackson, Esq., Cambridge, Md. Includes a Maryland set of Black Duck, (*Anas rubripes*), 1/11.

Ac. No. 204.—39 sets, courtesy J. G. Gordon, Esq., of Corsemalzie, Wigtownshire, Scotland. A valuable shipment which includes nine sets of British ducks with down, a beautifully selected series of 17 sets of the Black-headed Gull (*Larus ridibundus*), and several exotic rarities in gulls' eggs, notably *Larus cirrhocephalus* from Victoria Nyanza. The *ridibundus* series includes some of the darkest examples of gulls' eggs we ever saw, and it makes a fine showing on a background of Santa Barbara beach sand (Annex, Case XXIII, Drawer 23.).

Ac. No. 205.—32 sets, 141 eggs, courtesy of Philip C. Dutton, Esq., Stone, Staffs, England. Several small series showing variations, especially notable in case of Magpie (*Pica pica*). A set of the British Song Thrush, *Turdus philomelus clarkei*, of the unmarked type, has an honored place in one of our drawers showing reversions. The eggs are indistinguishable from those of our American Robin (*Planesticus migratorius*). Member fee 1920(?).

Ac. No. 206.—10 sets from the aviary of Wm. Shore Bailly, Esq., Westbury, Wilts, England. We are especially pleased to add these new species to our limited representation of *Conures*.

Ac. No. 207.—16 sets and six nests from West Australia. Presented by C. E. Orton, Petworth Park, Moora. This elegant shipment includes several rarities, notably *Anellobia lunulata* and *Calyptorhynchos baudini*, of whose nests Mr. Orton was the virtual discoverer. Two sets of the Australian Raven (*Corvus australis*) are especially welcome to our drawers.

THE ALTERED PROGRAM FOR 1920.

At the Annual Meeting of the Trustees of the Museum of Comparative Oology, held at the Museum on the 19th of January, 1920, a motion was introduced by Miss Caroline Hazard (ex-President of Wellesley College) to the effect that the institution should not indulge in field or exchange activities for the ensuing year, and that the funds usually devoted to these purposes should be tendered to the Director, Mr. Dawson, as salary, with instructions to devote himself to the early completion of "The Birds of California". After suitable provision for the upkeep and the "open door", and stipulations by other trustees that the Journal should be issued as planned, and that the Director should be relieved of the responsibility for raising funds, the suggestion was unanimously adopted. [Trustees Ripley, Hazard, Hale, Edwards, Schauer, and Dean Weld in attendance—Dawson present, but not voting.]

This decision was a "facer" in view of the elaborate budget submitted by the Director for the ensuing season, and especially in view of the exchange undertakings both at home and abroad. But that the decision was generous as well as just, there can be no question, in that it involved a measure of financial underwriting of a long overdue venture—an enterprise of which much was and is hoped. Mr. Dawson's first pledges had been made to the public with regard to the execution of an elaborate work upon the birds. The museum was launched at the time it was for the express purpose, among others, of conserving this important project, then endangered by the oncoming of the war. When it was found that the revival of interest in oology which followed the armistice was making unexpectedly heavy demands upon the author's time, it seemed best to call a halt in the program of museum expansion, and to enable Mr. Dawson to finish the task first undertaken—to clear the boards as soon as possible—in order that he might devote his entire time thereafter to the congenial task of helping to guide and to focus the world's interest in birds' eggs. Accordingly, arrangements have been concluded whereby the entertainment program of the Museum of Comparative Oology may be carried out for the ensuing year, and the Director be freed from the responsibility of supervising field work and conducting exchanges.

This arrangement does not mean a suspension of Museum functions. The doors of the Museum will be open as usual twice a week, and the voluntary activities of the Members of the M. C. O. will be supervised and developed along lines already laid out.

The coöperation of Members and well-wishers, therefore, is especially needed and desired during this unexpectedly prolonged period of preparation and accumulation. The change only means that for the time being the local funds hitherto devoted to field work will be turned into another channel, and that the exchange program will be suspended until the return of Mr. Dawson from his accomplished task. As evidence of our own good faith, we are publishing the "Journal" without a subscription list, and are proposing to our esteemed members and correspondents a donation-subscription of material in lieu of annual fees.

THE QUESTIONNAIRE.

During the winter past the M. C. O. put out a "questionnaire," addressed to oölogists both home and foreign, and soliciting information oölogical and biographical for use in our files. While some valuable data have been submitted in response to this invitation, we cannot claim that the experiment so far has been an unqualified success. Evidently, we have bungled somewhere. For one thing, we neglected to enclose return postage. This was not an oversight exactly (we addressed these questionnaires only to those who had already received a copy of the "Journal," with our compliments) but it was a mistake. We admit it sorrowfully.

And again we were unfortunate in having too many rivals in the field, some whose presence filled the mind with foreboding. There was the Draft Questionnaire, a stupendous document, before which the stoutest heart quailed. "Do I have to fill out that thing? But I don't want exemption." No matter if you were ready to pour out your life blood upon the spot for your country, you had to go through the documentary grill first. And there is the Income Tax Return burrowing into your vitals more familiarly than your trusted family physician! "What! another questionnaire? Away with it!" And this is the year of the Census. We have rehearsed our family circumstances patiently to a casual stranger and we had supposed that our patriotic duties were done. "Another! Really, you must excuse me!"

Well, the joke is on us; but now that we have all had a laugh about it, the M. C. O. ventures, most humbly, to repeat its request for **information**. The census returns have been made; the tax inquisition is over for this year; the war is past; and the issue before the house is that of **increased coöperation** among oölogists. The returns that have come in are mighty interesting to us. They would be to you. Wouldn't you like to know, for instance, who has the largest private collection in America? Whom do you think? We know; but we "dassent" tell—out loud. Isn't it a matter of congratulation that Col. E. C. Stuart has 40,000 eggs representing 2000 species and subspecies of Indian birds? Or that Wm. Mark Pybus, Esq., has authentic eggs of the Eskimo Curlew? We know pretty much who are in the 900 class (a very few, by the way), and we are permitted to tell Members of the M. C. O. Messrs. Bent and Harlow, for example, are in the "800" class. How many more are there? But, of course, mere numbers are not the object sought in collecting eggs, nor rarities even. **Completeness within a chosen field** is probably the highest object which the private collector sets before himself, and it would be interesting and **profitable** to know just what everybody's specialties are.

Some of our correspondents, and these almost without exception the more eminent ones, have answered every question with painstaking accuracy. Our sincerest thanks are due them for this courtesy, and we anticipate the pleasantest of relations based on such frankness. We have given the questionnaire the "once over" and the results are valuable as far as they go. We beg those who have put this matter by, or who have hesitated to commit themselves, as well as those who have merely neglected it, to send in full answers at early convenience, or to notify us so that we may send them new blanks.

The Case of the Santa Cruz Island Jay, *Aphelocoma insularis* Hensh.

AN EXAMPLE IN COMPARATIVE OÖLOGY.

One of the prime objects of the study of comparative oölogy is the determination of values in what we may call Comparative Genology. By genology we mean a study of the vital characters which distinguish species, a study of geno-dynamic values, as distinguished from structural characters, habits, psychology, etc. A geno-dynamic appraisal to be of any value must involve a pretty thorough knowledge of the present status of a given species, its distribution, its associations, its reactions with other



Portrait of Santa Cruz Island Jay, *Aphelocoma insularis*
By W. Leon Dawson

species, and especially, its adaptability to changing environment. Such an appraisal presupposes a considerable knowledge of taxonomic relationships, or more exactly, of phylogeny; and it is, in short, a sort of epitome of racial history from the value standpoint. More particularly, then, the task of genology, or geno-dynamics, is to estimate the relative **value** of a species, and to express that value in terms of energy and achievement, noting in each case, direction of development, rate of developmental progress, degree of success or failure, mobility, adaptability, and the like.

Without presuming to answer all the questions raised by this hurried definition of a science (the discussion of whose set terms I shall now dismiss), I wish to point out some "geno-dynamic" values which are indicated by a comparison of the eggs of *Aphelocoma californica* (Vigors) and *Aphelocoma insularis* Henshaw. Whether or not one follows a recent authority (Oberholser) in recombining the western mainland jays of the *Aphelocoma* type, *californica*, *woodhousei*, and the like, as one species, it is enough for our purpose to note the existence in California of a mainland *Aphelocoma* jay, *A. californica*, only slightly, if at all, differentiated by somatic characters (sub-species *immanis* claimed by Grinnell and *oöcleptica* by Swarth). We note further that this substantially uniform species is characterized, apparently throughout its range, by a high degree of variation in respect to its eggs. This variation is so great that it has given rise to two well-recognized types, the "red" and the "green," with every combination or intergradation between these extremes. It is not necessary for our purposes to describe these variations minutely, but the reader is referred for illustration to the colored frontispiece in this number. So far as ascertained, this variation, however derived, observes the well-known Mendelian laws, and the strains thus indicated exist quite independently of local or environmental conditions. Whatever else this set of facts may mean, it probably indicates an active, mobile, virile, or dominant, type of bird. The recurrence of eggs, for example, of the "red" type in widely sundered localities does not indicate the presence of a "race" of jays of wide distribution and still imperfectly amalgamated with a hypothetical race laying green eggs. It denotes rather the ancient and long established presence of a certain tendency to vary inherent in the reproductive stream, transmissible both in general and in particular by heredity (i. e., breeding true to type), but existing in utter independence of somatic change (i. e., variation in the individual bird, the individual being the contem-

poraneous but not necessarily the correlated exemplar of the species concept). This tendency to vary, which is manifest in the egg, might conceivably, indeed would in all probability, reflect itself racially (or somatically) under selective breeding, which in the case of the California Jay has marvelously preserved the uniformity of the species.

There exists upon the Island of Santa Cruz, some twenty-five miles distant from the mainland at Santa Barbara, a Jay, *Aphelocoma insularis*, which is almost an exact replica of the mainland bird, *A. californica*, in color and pattern of plumage, but which has undergone certain important modifications of proportion, especially of beak and feet. While the wing and tail measurements of the island bird average only from ten to twenty per cent longer than those of the mainland type, the bill will sometimes bulk nearly twice as large, and the feet and tarsi will probably show a fifty per cent increase in bulk. The Santa Cruz Island Jay enjoys a fairly uniform distribution within its narrow range, an area twenty-five miles long by eight wide at the widest point; and because it is a vigorous, dominant form upon the island, is probably maintained at the saturation point of some 2000 or 3000 pairs.

As in the case of any other insular species, questions arise as to the presence of this jay on Santa Cruz Island. How did it get here? How long has it been here? What was the size of the original colony? Has there been an infusion of new blood from time to time derived from the mainland? or has there ever been such infusion? These are very natural and very interesting questions, but their answer is quite beyond the power of the anatomist. The "skin-man" is silent. He has no criteria beyond that of somatic change in one direction, i.e., increase in size, to guide him. He is destitute of the knowledge of any other factor by which he may check up or correlate his guesses.

Naturally, the taxonomist turns to the geologist. He is able to help out sometimes, but his answers are apt to be a little vague. For how long a period has Santa Cruz Island been separated from the mainland of California? "A hundred thousand years," says Mr. John R. Pemberton, who has done a great deal of topographic work for the U. S. Geological Survey in this section. That is a generous allowance, more than ample to account for this increase of the bird's bulk. But are there any other possibilities besides this of original occupancy by which this semi-distant island might have been stocked? Yes, three at least; and in naming them we shall rule out of present consideration the "obvious," but also impossible, hypothesis of flight. The wings of a jay, whether *insularis* or *californica*, are too short and weak to permit of its attempting a sheer flight of twenty-five miles. The jays of Santa Cruz, if not actually autochthonous, are colonists, and their immigration must have been assisted either by storm, or by drifting wreckage used as a refuge, or by human agency. Either one of these, or else the migration occurred at a time when the channel which separates the island from the mainland was much narrower than at present.

A consideration of the soundings of the Santa Barbara Channel might be instructive here, but it would lead us too far afield for our present discussion. The point is that the anatomist unaided is absolutely helpless in trying to answer these questions. He cannot tell whether the Santa Cruz Island Jays are a split-off branch of the mainland stem, resident for a hundred thousand years, or whether they were carried over a few thousand years ago by the Indians. He cannot tell whether they are the motley residue of a familiar traffic between island and shore, which finally ceased only when the channel became too wide to cross conveniently awing, or whether, indeed, the place was peopled by a chance pair blown over in a storm.

At this point the oölogist comes in. He does not pretend to know all about it, but he is able to make a modest contribution to knowledge. At least he feels competent to circumscribe the area of this inquiry. A series of some fifty sets of eggs of the Santa Cruz Island Jay passed in review by the Museum of Comparative Oology shows them to be the most absolutely uniform of any spotted eggs known. The series is practically without deviation as to ground color; and while there is inevitably some difference in the distribution of the spots, there is no substantial deviation in the color of the pigment.

If this series had to be compared with a mainland series, showing also a substantial uniformity, we should be as far at sea as the anatomist; but when we place this series alongside one accumulated on the mainland shore, only twenty-five miles away, we find the most startling contrast. The eggs of *Aphelocoma insularis* are among the most homogeneous known; the eggs of *A. californica* exhibit the highest degree of habitual variation of any passerine species in North America. There can be only one meaning to this. *A. insularis* does not represent a general derivation or stock from the mainland, nor could it have achieved such a uniformity if it had been variously derived. The Santa Cruz Island Jays represent a single Mendelian type accidentally derived from one of the multitudinous strains existent on the mainland. We have in their eggs an example of purest inbreeding, an exact selection; and the birds are in all probability the offspring of a single original pair. There have been

no intrusions or replenishments from the mainland, for the egg-type at least would have "gone to pieces" under the impact of such a strain.

We have denied that there exists upon the mainland, in the case of the California Jay, any recognizable evidence of correlation between variation of eggs and somatic changes in the parents. But that is not to say that such evidence may not exist. For we have already conceded that such evidence of correlation, or at least of concomitant variation, might become instantly manifest under selective breeding. The somatic uniformity of the mainland jay may still represent potential variations now held in stern check by interbreeding. The case of the Santa Cruz Island Jay may represent an accidental release of a tendency toward increase in size, latent but held in leash, in the case of its particular ancestors. This being true, or at least possible, we are not free to ascribe all the evidence of change in *A. insularis* to the slow workings of environmental reaction alone. If we are correct in our surmise that *insularis* is the product of a single pair of birds accidentally or artificially isolated from mainland stock, the distinctions which we observe might have arisen immediately, or within a few hundred years at most. While we do not know even yet what all the geno-dynamic values of the Santa Cruz Island Jay are, we have greatly restricted the field of discussion, and we regard this inquiry as a fair example of the methods and promises of comparative oology.

SIMPLE INSTRUCTIONS FOR THE COLLECTING AND PRESERVATION OF BIRDS' EGGS.

Not all bird-lovers are egg-collectors, but many who lack experience would be glad to retrieve an occasional rarity, in the name of science, if they knew how to proceed. The following suggestions are not meant to be exhaustive, nor are they addressed to "old hands," whether professional or amateur.

The basis of all modern egg collecting is the set, or clutch, which comprises the nestful, or all the eggs which a bird would normally lay for one sitting. Any number less than this is of little or no value, save in the case of extreme rarities.

A set of eggs is of little or no value to science unless it is well collected; that is, that its collecting conforms substantially to the following requirements:

First, that it be **well identified**. The eggs **must not be touched** until the collector is thoroughly satisfied as to the identity of the parent bird, or has secured it.

Second, that the eggs be removed and transported to the work-room under such circumstances, or accompanied by such marks of identification, that there can be **no possible doubt** as to which eggs belong together in one individual set.

Third, that the eggs be **well prepared**. The contents should be **entirely** removed through a single, small, round hole drilled midway on one side (the least showy side), and the inside of the shell thoroughly rinsed with clean water, and dried. Small, inexpensive drills, carefully graded as to size and use, may be obtained of any supply house, or in default of such, a wire nail of suitable size, **perfectly** straight, may be ground or filed to a perfectly rounded taper point, and finished off with a fine file held with the grain. The final furrowed surface of lengthwise grooves, which the drill requires, can be obtained only by pressing the taper point firmly between the file groove until the minute rugosities of the file ridges imbed themselves in the softer steel. These home-made drills are incomparable, and almost obligatory for delicate eggs. The contents of the egg are forced out by a jet of air played through a blow-pipe, held very close to the hole but not in contact with it. Eggs advanced in incubation may require the patient use of delicate instruments, especially an embryo hook and slender-tipped forceps, or, if time allows, the use of digestive fluids, compounds of pepsin, or, in default of these, a saturated solution of cooking soda applied over night.

In case of common eggs, near the hatching point, but necessary for use in series, if time fails, a rougher method may be employed. A rounded hole substantially half the shorter diameter of the egg may be broken out by the skillful use of curve-tipped forceps, and the embryo lifted out. This is contrary to all the books and **very** unprofessional, but we do it under the spur of necessity rather than lose a coveted link in a series.

Attention should be paid to the drainage of the egg, after it has been twice rinsed by water injected, shaken thoroughly, and blown out. The egg should be rested hole down for a few hours on a blotter, or better, an absorbent linen cloth. If, upon examination, it is still "drizzling," apply the blow-pipe for a last toot. When thoroughly drained, turn hole up to dry. Be careful not to leave imperfectly blown eggs long enough to get glued to the drain cloth; but if you are caught, remove the egg only by patient application of water on the opposite side of the cloth.

Fourth, that the eggs be **well marked**. Use the softest pencil obtainable, a "6B" if possible. Use your own system or follow our suggestions (recorded beyond), but **don't** leave unmarked eggs around.

Fifth, that the eggs be accompanied by a record, technically called **data**, setting forth the name of the collector, the date when taken, the exact locality where taken, a description of the nest, especially with regard to its immediate setting, and, if possible, a little reference to the behavior of the parent bird.

Sixth, that the eggs be accompanied, if possible, by the nest, most carefully collected. This last point is, of course, optional, but its observance enhances the value of the eggs from two to ten times, even where no such allowance is made in the practice of exchange. For suggestions regarding nest collection, see the preceding issue, Vol. I, Nos. 1 and 2, of the Journal, pages 26-29.

A RECOMMENDED MARKING SYSTEM.

A review of the marking systems in vogue in the identification of birds' eggs is beyond the scope of this paper. There are many such, some of excellent merit in themselves, and others reflecting the individuality of the originator in such a charming fashion that we should not wish to dispute their merits. But the situation regarding unmarked, or imperfectly marked, or indistinguishably marked, eggs is so trying that the writer cannot forbear to inveigh against it, and in doing so to present a system which commends itself to him as being at once simple, adequate, and comprehensive.

If eggs were pictures, finished upon one side only, we should inscribe full data upon the backs and be gloriously content. But eggs have no backs and we hesitate to mar their picture surface with too much of our own effusion. The stern requirement of giving the art of nature precedence here, dictates a modest simplicity and this wise dictate is supplemented in the case of smaller eggs by the lack of physical space and by the danger of breakage. The less one "monkeys" with the surface of Kinglets' eggs, or with the fragile turquoise of the Purple Finch's egg, the better for science. Identification, therefore, absolute identification, is the sole requirement in marking a bird's egg.

But neither is this so simple as some, especially our English friends, appear to suppose. It is not enough to inscribe an egg "A" or "11" or "1/4." This may do for private purposes, but "there are others." There are other collectors whose minds run in the same narrow or personal channels, and when "A" from Smith's collection meets "A" from Jones's take, all in the drawers of Robinson, who is to decide which is which? An ideal identification mark is one that will identify anywhere, at any time, under all circumstances. The Director of the Museum of Comparative Oology speaks with deep emotion on this point, for within the past three years he has handled no less than a thousand eggs which bore the illuminating (?) legend "1/4." We have accumulated at times a dozen sets of the same species, every egg of which bore the amazing distinction "1/4." Now these dear people who marked their eggs in this over-simple fashion, never supposed that anybody else had thought of marking a set of eggs "1/4," or if they did, they never supposed that their eggs would ever pass out of their hands, and, of course, having only one set, "1/4," of that particular bird themselves, they were content.

In marking eggs it is obviously desirable to record (a) the number of eggs in the set, (b) the date of taking, or at least such a portion of it as will serve to identify the place of the egg in a collected series (however recorded), and (c) the identity of the species. If to this could be added some mark identifying the collector, the purposes of exchange would be better served.

In view of the commendable and almost universal habit of keeping field notes, together with full records of all nests found, it is sufficient for personal requirements to inscribe upon the egg a serial number referable to such a note-book, or to records kept on file. If this can be counterchecked by a date reference, the serial number may be kept within bounds, and the allocation may be very much more easily determined. We secure this result at the M. C. O. by having each individual collector (save "the Chief") designated by an initial, and by starting a series for each collector each year. Collector Robert Canterbury, therefore, whose assigned initial is "R," writes his takes as R1, R2, etc. A set of five eggs of the Cassin Purple Finch taken in the season of 1919 will stand R133/⁵/₁₉. This is the field mark carefully applied and permanently retained. To this is added, in the work room, the A. O. U. reference number, which is 518. In order that this reference number may not be confused with the serial number, we enclose it in a circle or cartouche. Every egg in the set is so marked, and the possibility of confusion, even in the largest world series, is practically nil.

We do not claim that this is the only way of solving the problem. Indeed, it is probably a distinct advantage to have diversity of method, as well as of chirography, in exchange. But we do claim that our marking system is simple, convenient, and adequate. Moreover, it is not copyrighted.

NOTABLE VISITORS.

It was Lord Glenconnor of Glen who, on the occasion of a recent visit to the Museum, in expressing his warm appreciation of Santa Barbara, exclaimed, "Why, I'd never even heard of the place a year ago." This remark set the editor to thinking. Why, indeed, should we take it for granted that all good bird people have heard of our little city by the sea? What special claim have we upon their regard? Well, that is, perhaps, as well answered by a brief roster of Santa Barbara's more notable visitors for the year ending March 10, 1920. They didn't all come to the museum; bless you, no; but they did come to Santa Barbara, and they stayed as long as home ties would allow them; and they went away vowing to come back again **soon**. It is because these and other such have come and are coming in annually increasing numbers that the museum trustees feel justified in anticipating a large future, and in planning for an institution along cosmopolitan lines.

In presenting this list we have arbitrarily limited it to seventy-five names. We could as easily have trebled it without change in quality; while to mention all the distinguished visitors who have tasted our cheer in the last twelve months would require a volume some inches in thickness.

Their Majesties Albert and Mary, King and Queen of the Belgians.

Hon. Wm. C. McAdoo	Mr. and Mrs. Robert W. Bliss
Hon. Myron T. Herrick	John Barrymore
The Earl of Latham	Emilio de Gorgoza
Hon. Thomas Nelson Page	Maggie Teyte
Hon. Nicholas Murray Butler	Charles Scribner
The Earl of Minto	Mr. and Mrs. Albert Herter
Admiral Hugh Rodman	Geo. F. Adie
Admiral Brownson	Mrs. Mackay Smith
Raymond T. Baker	Col. Robert Means Thompson
Chas. E. Perkins	Mrs. Mark Requa
Frank Vanderlip	Albert Spaulding
Miss Anne Morgan	Sarah Teesdale Filsinger
Dr. Ralph Arnold	Harry Collison
William H. Crocker	Ronald Trees
Princess Poniatowski	Col. John C. Greenway
Lord and Lady Glenconnor	Harrison Rhodes
J. J. Astor	Barbour Lathrop
J. Ogden Armour	Gov. George H. Carter
Mr. and Mrs. James Speyer	Col. Colin Campbell
Marshall Field	Dr. Louis Davidson Ricketts
C. Oliver Iselin	William P. Clyde
The Maharajah of Kapurthala	Mrs. E. H. Harriman
Sir Hedworth Williamson	Mrs. J. Borden Harriman
Hon. Mrs. Ronald Greville	F. W. Root
William Sproule	Amos Tuck French
Mr. and Mrs. Edmund L. Bayliss	Captain V. A. Cazaret
Caspar Whitney	Dr. Chas. H. Mayo
Dame Melba	Dr. Frank Billings
John Burroughs	Thos. DeWitt Cuyler
Dr. Geo. E. Hale	Gen. C. H. Sherrill
Col. Dr. Casey Wood	E. C. Lorillard
Col. William Barclay Parsons	Mrs. Louis Lorillard
Herman Oelrichs	Victor Mapes
Baroness J. C. Van Eck	De Witt Parshall
Countess L d'Ursel	Wallace Rice
Vicomte and Vicomtesse Solignac de	Coningsby Dawson
Fenelon	Dr. Mary Roberts Rinehart
	Rudolph de Trafford



EDWARD PAYSON RIPLEY

Born Dorchester, Mass., October 30, 1845
Died Santa Barbara, Cal., February 4, 1920
Incorporator and Trustee of the Museum of Comparative Oology
President January 21, 1919, till death

THE PASSING OF MR. RIPLEY

On the fourth day of February, 1920, Edward Payson Ripley, for twenty-four years president of the Atchison, Topeka and Santa Fe Railway system, passed away quietly at his home in Santa Barbara. Although he had been for weeks hopelessly convalescent, his death from heart failure undoubtedly ensued from a series of surgical operations which he had undergone last summer.

Born October 30, 1845, at Dorchester, Massachusetts, Edward was the son of Charles and Ann Payson Ripley. Immediately after graduating from the village high school, young Ripley entered railroad service, where he early manifested his genius, first in connection with the "Pennsylvania," and later with the "Burlington" and "Milwaukee" systems. On January 1st, 1896, he became president of the Santa Fe systems, then little better than a bundle of bankrupt adventures. But before his road passed into governmental control, this master builder had organized and brought to a splendid unity a railroad system almost unrivalled for beauty, efficiency and intelligent public service, and worth as a consequence well on toward a billion dollars. The achievement of such a result bespeaks a rare endowment of executive qualities, but if one were to name one trait above another which made President Ripley great, and which will endear him to everlasting remembrance, it would be the rugged honesty which made him content to earn a salary, where others, less scrupulous, might have wrested tens of millions. Simple, sincere, devoted, the name of Edward Payson Ripley is moulded into the bronze tablet of American history.

The Museum of Comparative Oölogy owes a large measure of its success to the courage and patience of Mr. Ripley, who was a charter member of the institution, and at the time of his death its honored president. Mr. Ripley had from the first exerted a guiding hand in the affairs of this institution; and having only recently put aside his more serious responsibilities as a railroad president, he had launched a little campaign on behalf of the museum among his friends. While our president made no pretensions to special knowledge in this field of science, he was convinced of its value both as education and entertainment, and he was glad to lend us his name and influence as well as to give material support "**pro bono publico.**" Mr. Ripley shared these convictions and interests with his friend, the late Mr. Rowland G. Hazard, and the loss of both these patrons and counsellors is keenly felt by the young institution.

The following is a copy of the resolutions adopted by the Trustees of the Museum of Comparative Oölogy at a special meeting called Friday afternoon, February 6th, at the Commercial Savings and Trust Bank of Santa Barbara:

"Whereas it has pleased our Heavenly Father in his infinite wisdom to call from us our trusted counsellor and revered President, Mr. Edward Payson Ripley, we record with sorrow our deep and personal sense of loss, and with gratitude our sense of privilege in having been associated with him even so briefly in the upbuilding of an institution of science. Mr. Ripley was a man of impregnable honor and sterling worth. His abilities ranged far beyond the average best of human attainment, and yet he was always approachable and considerate. His sound judgment and sense of proportion were as conspicuous in our councils as were his fearlessness and his unflinching devotion. Mr. Ripley had given to our small affairs a large and generous consideration, and we record in gratitude and humility our appreciation of his distinguished services. And it is no small cause for rejoicing as well as for sobering responsibility that his latest public effort had been in our behalf.

"We extend to his beloved wife, Mrs. Frances E. H. Ripley, and to his sons and daughters, honored all, our sincerest sympathy. May the Divine Grace hallow the hour of parting and quicken the expectation of a glorious reunion. The memory of the just is a benediction.

"Respectfully submitted for the Trustees of the Museum of Comparative Oölogy.

By the Committee,

GEO. S. EDWARDS
CLINTON B. HALE
FRED H. SCHAUER
WILLIAM LEON DAWSON."

IN MEMORIAM.

Albert H. Vilas, Bird Lover.

Member of the Museum of Comparative Oölogy.

Born, Racine, Wisconsin, June 11, 1848. Died, Santa Barbara, California, Feb. 9, 1920.

By W. L. D.

It does not seem possible, even yet, that this gentle devotee of the birds, this familiar figure of Nature's byways, and our museum's most faithful visitor, should have taken his departure for a better land. I cannot recall when Mr. Vilas first dropped in, one of the crowd, at some bird function held in "the studio" in the pre-museum days. But he soon emerged from the crowd. Alert, persistent, insatiable for knowledge, and companionable withal, he soon became the studio-museum's most inveterate and welcome guest. For years he never missed a talk or a reception on an open day. On these occasions and on other private ones he reported occurrences afield with great gusto, or asked eager and often puzzling questions as to identification or behavior characters of our local species of birds.

Of Mr. Vilas' ample business experience I knew little; but of his interest as an amateur bird-man, I learned a great deal, and for his accomplishments I conceived a great respect. To me he was an almost ideal example of the profitable use of earned leisure. Bird-study taken up late in life kept him fresh and young in his interests. Moreover, it had lured him afield to his manifest physical profit; so that the birds had actually helped him to cheat the "grim destroyer" for several happy years. Along with his field work Mr. Vilas had also kept up an incessant reading, so that he had become a wonderfully well-informed man, his observation was accurate and his memory retentive, inasmuch that he could trip up the supposed expert, and once (to my undying amusement) he fairly sent me sprawling. He had, moreover, a kindly humor, so that he could give and take some very pretty blows without loss of bonhomie on either side.

My friend illustrated also that other trait so frequently observed in real nature-lovers, a trait which, for lack of a better term, we must call self-sufficiency. By this we do not mean intolerance of opinion, but rather independence of opinion. The student of nature forms the habit of going to the original sources. He appeals to the facts, and having found them calmly rests his case. This means that he is not subject to social vagaries. He is not at the mercy of public opinion. He cannot be stampeded into the acceptance of conclusions not his own. This appeal to nature means not only a strengthening and enrichment of life, but it ensures old age against emptiness. Is not the saddest plaint of age that of emptiness? "Nothing to do," old ties severed, social opportunities denied, practical problems distasteful. What remains? Well, of course, chiefly, the communion with the Unseen, the spiritual preparation for the renewed life. But even that is likely to be an austere thing, incommunicable and tenuous, unless it is supported, diversified, and clarified by contact with nature. The man who is supported in his last years by a hobby, especially by a nature hobby, the man who is absorbed to the last in a passion of wonder over the marvels of God's creation, he is thrice blest. He enjoys life in his own right; he "knows his salvation;" and he makes of old age a prized opportunity for us all, a thing to be welcomed and cherished, instead of a bleak stretch before which we tremble and fall silent. So, I believe, it was with our friend; and I glory that he went down, after a full voyage, with his colors fluttering courageously from the masthead.

SINGLES.

One of the pleasantest occasions of the M. C. O. year was the "joint meeting" of the Southern Division of the Cooper Ornithological Club and the Members of the M. C. O. held at the Museum in Santa Barbara, Saturday evening, October 25th, 1919. There were fourteen visitors from Los Angeles and other southern points, and there were twenty-four of our own Members to welcome them.

The early evening was passed in a social way while supper was served, and in the telling of nesting stories. These included some thrillers, for the challenge was out to produce the biggest story of adventure, or to recount the taking of the rarest egg. At nine o'clock the local Members retired to allow the visitors full opportunity at the cabinets. The words of appreciation and sometimes of astonishment which came from

our bird-loving guests were music to our ears, since we had never before entertained a delegation so representative or so fitted to appraise.

By great good fortune midnight of October 25th was the time ordained for setting back the clocks, so at 1 a. m., "daylight saving time," we dutifully declared it midnight and adjourned. That the appreciation of the M. C. O. on the part of our distinguished guests was genuine was attested by a resolution which they passed declaring for an annual repetition of the event. Among those present were Dr. Frank S. Daggett, Prof. Samuel Rittenhouse, L. E. Wyman, Dr. Irwin D. Nokes, Albert E. Colburn, W. A. Brouse, C. Oscar Reis, and A. W. Hanaford, all of Los Angeles; M. French Gilman, of Banning; Wilson C. Hanna, of Colton; L. G. and Sidney Peyton, of Fillmore; M. C. Badger, of Santa Paula, and Dr. Walter P. Taylor of Washington, D. C.

Our good friend Rowland H. Archer, Esq., of Lyndhurst, Victoria, Australia, has a patriotic big heart as well as a splendid collection. During the war Mr. Archer opened his collection to the public in the interests of the Y. M. C. A., and during two years realized for this worthy cause the handsome sum of £1200. It is hardly fair under these circumstances to refer to such an aggregation of birds' eggs as a "private" collection.

No doubt some of our correspondents will shudder at seeing their names in print. Modesty has been a necessity as well as a virtue in days past, when the protectionist was out gunning for any sort of game that offered. But a closed season has been established, at last, on scientific collectors. The Government has taken us into a partnership of service, and there is no reason why we should not be perfectly frank about our affairs. The M. C. O. has nothing to apologize for and nothing to hide; but if any of its correspondents should happen to be less fortunately placed, we will, upon notice, try to observe due circumspection.

The fact is, the coöperative idea in the collecting of birds' eggs is absolutely beyond criticism. Its consistent development means the maximum of service and the minimum of toll in the name of science. The M. C. O. has tilted with several self-appointed critics, but they have invariably retired from the field when they found that their own crowd was not following them. The best oologists are the best friends of bird protection; and by the same token the indiscriminating protectionist vies with the unscrupulous oölogist in doing damage to the cause.

Among the most welcome of M. C. O. visitors is the Hon. John Lewis Childs, of Floral Park, N. Y. Mr. Childs has one of the most complete collections of North American birds' eggs in existence. On the occasion of a recent visit—March 1st it was—he told us of the acquisition of a set, 1/2. accompanied by female parent, of the Wandering Tattler, *Heteractitis incanus*, the first known to science. The eggs were found on Forrester Island, Alaska.

The local Members of the Museum of Comparative Oology, now about fifty strong, are also known as the "Santa Barbara Bird Club." The Club is putting on a full program of field activities, somewhat analagous to the local "hikes" of the Sierra Club, save that bird study is the sole motif. The work is attracting favorable attention from the tourists and is growing in importance, insomuch that a special department will have to be assigned to it in future issues of the Journal. The officers are Dr. H. C. Henderson (of Carpinteria), President; Mrs. R. L. Winchell, Vice-President; Miss T. G. Williamson, Secretary; Miss Theora S. Burnap, Reporter; William Leon Dawson, Leader.

The Bird Club meets at the Museum for study of particular bird groups, on the third Thursday evening of each month. The attendance has been good, and the interest, even in rather recondite matters of classification, quite keen. Bird study is a perennial interest, and the community which does not maintain a successful bird club lacks only the muster call and organization.

Although confessedly an off-year for us afeld, the Institution will not lack for competent volunteer service. W. Denton Baisley, a returned soldier recovering from shell shock, is already at work for us "on his own" in the San Jacinto Mountains. John M. Davis will comb the Eureka country for rarities, as of yore. Austin Paul Smith, "than whom no one puts up a better birdskin," is working in Central America under personal guarantee from the Director, for the interest of the institution. We are to have Mr. Smith's exclusive take in birds' eggs, accompanied by skins of parents, while other collectors are to profit by his general activities.

Lieut. Adriaan van Rossem, who is scheduled to go soon to the United States of Colombia, deserves a paragraph by himself. Having been plucked from the academic tree a little prematurely for "officer training," van Rossem volunteered as a private upon the entrance of America into the war. The only reason he never got across was that Uncle Sam was too busy promoting him to let him go; so he brought back a first

lieutenant's commission and a record of most efficient service at home. Small wonder, then, that he is determined to fight something, if it be only army ants and bushmasters in Colombia. Mr. van Rossem will collect for us abroad, as opportunity offers.

At the Annual Meeting of the Trustees, Mr. E. Raymond Driver, lately of Riverside, Illinois, and now of Santa Barbara, was elected a trustee of the M. C. O. Mr. Driver comes of a well-known family, long neighbors of the Ripleys in Riverside. He is a keen sportsman, familiar with every branch of outdoor life, and he has taken up collecting from the sheer fascination of the game. The photograph of the Golden Pileolated Warbler's nest, a very difficult subject in its loose, dead leaf setting, shows what a gem of a collector we have found. And Mrs. Driver is just as keen about it as he is. That's where real Luck comes in.

We are glad to see that the "Committee of Twenty-five" on the Revision of Prices of Eggs of North American Birds, has organized and is functioning. This committee, appointed by popular vote, as recorded in the columns of the veteran "Oologist" has risen in response to a long-felt need. The old catalogs, Lattin's, Taylor's and the rest, are obsolete. But some authoritative basis of values is absolutely necessary in the maintenance of exchange relations, as necessary in its narrow field as is the dictionary in its task of maintaining the purity of the English language.

There was danger at the outset that the few collectors who buy eggs "cheap for cash," and the few dealers in eggs, should control the situation to the ultimate embarrassment of the entire craft. But, fortunately, more sober counsels prevailed and the committee decided, almost unanimously, to prepare a strictly exchange medium, and to leave the buyers and sellers to do their own dickering. This action does not require to be construed as a rebuke to those who buy eggs, nor as a criticism of those who sell; but it is a high-minded action which lifts the whole discussion above the plane of commercialism, and which asserts that oological exchange is a business to be conducted between gentlemen, and in order that science may be served. There are those who protest that this is a mere camouflage of words, and that the two propositions, a net cash price, or a lofty exchange valuation, mean the same thing in the end. But those who make this claim are the very ones who worked feverishly for the cash catalog, and who find themselves embarrassed by the exchange arrangement. There is evidently a difference. Enough said!

Mr. R. Magoon Barnes, of Lacon, Illinois, deserves great credit for fathering this committee enterprise, and especially for accepting the committee's conclusions which were at variance with his own convictions, in a sportsmanlike spirit. Everybody knows that Brother Barnes is accumulating an amazing quantity of eggs, and everybody knows the magic of his golden wand. Our aim is not at all to embarrass the operations of favored gentlemen such as he, but to prevent the monopoly (unintentional, we are sure) of a field which belongs first to science rather than to finance.

It is worth while to mention that no less a personage than A. C. Bent, Esq., author of *Life Histories of North American Birds*, has accepted the position of Honorary President of this Committee of Twenty-five. Dr. B. R. Bales, of Circleville, Ohio, is the very efficient Chairman; and Rev. H. E. Wheeler, of Fayetteville, Arkansas, the Honorary Secretary. Messrs. J. Hooper Bowles, F. C. Willard, and R. C. Harlow, have been appointed a sub-committee on Final Values; and we are sure that the finished product, the New Standard Catalog of American Birds' Eggs, will be a model of its kind, authoritative, and as permanent as anything scientific may hope to be.

While some of the gods of American ornithology are uncertain even yet whether to laugh or to cry over the recrudescence of oölogy (and are, therefore, taking it out in sniffing), it is refreshing to see the degree of seriousness with which our British contemporaries take their study of oölogy. Not to mention Hume's *Nests and Eggs of Indian Birds* (written by an Englishman and published in London) as a piece of work unexampled in America, because it is thirty years old, we have only to refer to the latest issue of "The Ibis" for evidence of the kindling interest which Englishmen take in the study of oology. The January "Ibis" contains a ten-page account of the Fifth Annual Oological Dinner held at Pagani's Restaurant in London, and participated in largely by well-known members of the British Ornithologists Union. Lord Rothschild took the chair, and the mere enumeration of items in the feast of good things oological over which he presided, is enough to turn an intelligent novice green with envy. We can only mention one item, "A clutch of four Lapwing's eggs, of the very rare cyanic form" exhibited by Mr. F. G. Lupton. This set, we learn, was the only one of its type culled from an examination of 450,000 Lapwing's eggs, an examination carried out over a period of twenty-four years. The occasion was so enjoyable and so profitable that the committee in charge decided to hold **two** such annual dinners and exhibitions hereafter.

We take pleasure in announcing the arrival of a contemporary, already esteemed, "The Oologists Exchange and Mart," edited and published by Kenneth L. Skinner, Esq.,

of Weybridge, England. Its first issue, a four page monthly sheet, appeared in June, 1919, and it has recently doubled in size, in addition to a "Confidential Supplement" issued for subscribers only. Mr. Skinner is a veteran at the egg game, and the enterprise is sure to progress under his able management. Not the least valuable of the magazine's services is the bringing together of scattered workers, and the infusion of a spirit of solidarity in the craft. We are already much beholden to the "O. E. & M." for the establishment of pleasant connections, and we are sending this Journal to all its subscribers, irrespective of previous acknowledgments.

A like spirit of inquiry into matters oölogical is manifested by the supporters of "The Emu," the dignified and worthy organ of the Royal Australian Ornithologists Union. Not an issue appears which does not record the adventures of some major nesting trip, or describe the nidification of some species new, or almost new, to science. There is a freshness and enthusiasm about this journal which, no less than its judicial scientific temper, makes a strong appeal to the student of cosmopolitan ornithology. Perhaps it is a first love therein recorded. "The Emu" is only in its XIXth year, but if so, may it be indefinitely prolonged. Better a jejune utterance or a little repetition if need be than the blase spirit which is manifest in certain other quarters, and which makes "ornithologists" yawn at the mention of a bird's nest and turn to the preparation of—gopher skins.

The English-speaking world has no monopoly of interest in birds' eggs either. "El Hornero," the official organ of the **Sociedad Ornitologica del Plata** bristles with it. Argentina comes pretty nearly being the United States of South America, and the alert spirit of the country is reflected in these pages. We do not read Spanish (yet), but we can appreciate a half-tone labelled **Nido y huevos del Picaflor gigante (Patagona gigas)**, and we are smitten with instant envy of Senor Carlos Samuel Reed, who presents it. We recommend "El Hornero" to our readers as an important means of getting in step with the new world stride.

Under the necessity of crowding a year's work into a single ("double") number of the Journal, many important matters have had to go by the board. These include formal reports of business meetings, accounts of field trips, etc. We have reams to say about museum practice, and double reams about phylogenetic relationships, emerging to clearness out of their ancient fog. But these must wait. Correspondents have sent us much news both cheering and helpful, but we have been uncertain what we had a right to publish and are asking for a clearer distinction of publishable matter, in order that we may be fortified for the next time. Most regrettably, an important discussion submitted by Mr. A. C. Bent, regarding a pricing method for birds' eggs, has been crowded out of this issue—largely because of the editorial expansiveness. Gentlemen, we shall have to have more room,—more room or less air.

THE BIRDS OF CALIFORNIA ENTERPRISE.

A Review of the Situation Wherein the Author Is Rather Frank, but Not as Frank as He Might Be. Of Special Interest to Members of the C. O. C.

The popular descriptive MS. of "The Birds of California" is now practically complete. Although something remains to be done on the technical side—plumage description and topical matter—this is an affair of weeks, and is quite subsidiary to the main purpose of the work, which is now realized. This fact of the essentially completed manuscript justifies the writer in indulging some plain talk about past conditions, and in making some confident announcements regarding the immediate future.

When the author proposed, some nine years ago, the preparation of an elaborate subscription work upon the Birds of California, he only half realized, and none of his friends began to realize, the magnitude of the task before him. As a natural consequence plans were formulated and ratified which could have been consummated only under the nearly ideal conditions then existent, viz., in 1910 and 1911. That these conditions speedily changed for the worse in 1912 and 1913, the reader need not be reminded. The extent of field investigation required in order to enable the writer to do clean, first-hand, comprehensive work, and the apathy of "capital" regarding an undertaking which it did not pretend to understand, operated to prolong the time of preparation far beyond the promised period. Above all, the oncoming of the war with its absorption of interest and change of emphasis, and, finally, its setting aside of all lesser work, delayed "The Birds of California" still further.

At the most critical period of the enterprise, viz., in the fall of 1915, a sort of blind panic set in, a financial crisis which would have sent the author-manager to the wall if it had not been for the timely succor of a few local friends, friends who, as it happened, were very little interested in a bird-book, but who were interested in any-

thing which promised well for Santa Barbara. Through their indulgence a little museum enterprise was launched, and it was dedicated in faith to a distant fellowship of oologists, whose outlines only the bird-dreamer himself pretended to discern. It was frankly understood by the incorporators of the Museum of Comparative Oology that this move (otherwise ill-timed enough in the midst of a great war) was the only thing which would save the publishing enterprise from failure. This conviction of the founders has been fully borne out by experience. The stipend afforded by the Museum enabled the author not only to serve the community of Santa Barbara as a museum director, and to prepare plans for a modest service to science itself as an exponent of oology, but it enabled him, as was frankly understood by all parties immediately concerned, to pursue field work vitally necessary to the intelligent preparation and illustration of "The Birds of California." The author, then, has been from the outset very much beholden to these Santa Barbara friends who are primarily responsible for the existence of the M. C. O.; who alone, apparently, have fully understood his difficult financial situation; and who have generously seconded, as they were able, his efforts to keep faith with his public and to complete "The Birds of California." It was supposed that a reasonably discerning public would be able to appraise the situation, and to exercise a corresponding degree of patience in regard to the promised "Birds of California." In especial, careful explanations of the significance of the arrangement were made, or attempted, to responsible members of the Cooper Ornithological Club, the organization which had generously endorsed Mr. Dawson's proposals in 1910 and 1911.

But to our pained surprise the chartering of the M. C. O. and its subsequent successes seemed to be an occasion for alarm instead. Other institutions, a few of them, were immediately distrustful. As time went by the word was passed around that Dawson had quit the job. "He has become enamored with birds' eggs and has forgotten his real task." "'The Birds of California' will never be published," etc., etc. All these things were, of course, exquisitely untrue. I have not now, nor ever have had, any dearer ambition or more sacred trust than the completion and publication of "The Birds of California" at the earliest moment consistent with accuracy and the realization of the highest standards of which I am capable. This object I should have pursued were I behind prison bars (where one zealous brother wanted to place me), and no kind or degree of misjudgment could operate to force me into putting out consciously inferior work, faulty and insufficient as my conscious best must be. And if I were to confide in this connection that one otherwise intelligent contemporary, under alleged "pressure from the East," has declared my name taboo in its columns until "The Birds of California" shall have been completed or "its publication assured," you would have only a faint idea of what I have been up against.

One sure result this campaign of criticism, however motivated, assuredly had. It made it impossible to raise needed funds in the name of "The Birds of California." Such a situation is exactly like a run on a bank; the more demands are made upon it, the less able it is to meet those demands. For a period of three years, therefore, we neither asked nor accepted cash subscriptions to "The Birds of California" (with the exception of two gentlemen closely in touch with our affairs who generously insisted upon paying for their books). What we have accomplished, we have accomplished through private aid, through money (six or seven thousand dollars) earned upon the side, and, above all, through the cooperation of the M. C. O. As a final and clinching example of the solicitude of the Trustees of the M. C. O. comes their recent action ordering the cessation of field activities and the devotion of the funds so available to putting the last touches upon "The Birds of California" MS. Do you wonder, then, that "we" are very happy and **very grateful**, and that we feel quite sufficiently vindicated?

But before dismissing this personal discussion of a situation which required frank attention, the writer wishes to say two things: First; he is not cherishing any personal grievance against these dear people who have been out of touch or sympathy with the situation. Life is too short for recriminations, in any event, and impatience with an author whose work is several years overdue was very natural. The situation regarding the bird-book has been trying enough, Heaven knows, and its detailed reasons were, no doubt, hard to understand. My critics, strangers for the most part, could not realize that a mother would sooner forsake her child than a writer give over the prosecution of a work so boldly staged and so warmly endorsed as "The Birds of California."

And, second, I want to confess a measureless debt of gratitude to the discerning ones, a faithful few, who have stuck by through thick and thin, persons for the most part of limited means and heavy demands, groping their way, as we all did, through trying times. The unquestioning confidence of these generous hearts has been a benediction and a spur to utmost effort. And, after all, if the heart is fed, who cares whether the old pocketbook be flat or bulging! Faith bridges chasms and presses on to victory, while hesitation and fear with doubt and envy, however richly clad, topple over the nearest brink and so pass to oblivion.

THE PROGRAM.

While it is not possible at this time to make perfectly authoritative or "official" statements regarding the plans of The Birds of California Publishing Company, it is safe to announce the following working probabilities:

The MS. of "The Birds of California," now being revised, and completed on the topical side, will be ready for publication August 1st of this year.

The author has received private assurances of the means necessary to perfect the work for press and to carry through the final canvass.

The canvass, therefore, will be launched August 1st, and if successful, as we have every reason to anticipate, we will go to press about December 1st.

There will be a thorough business reorganization effected prior to August 1st, and help will be secured adequate to the handling of rapidly enlarging affairs. There will be a thorough revision of prices, effective August 1st, and doubtless a substantial advance based on current rates for material and labor.

The material in hand justifies an estimate of three fat volumes for the less expensive editions of "The Birds of California," while it will necessitate a four-volume format in the de luxe editions.

The work will probably be brought through press volume by volume, with intervals of from four to six or even eight months between them. The first volume should appear, therefore, about June 1st, 1921. Partial and proportional payments will be expected instead of a lump sum, in view of this volume by volume delivery. This arrangement, also, will probably best suit the convenience of the average purchaser.

The work will not be started in press until the condition of the manuscript and the illustrations, and of the finances, assures the completion of the work in spite of any personal changes or losses which could arise during publication.

"The Birds of California" will be the most elaborately and beautifully illustrated work upon birds ever produced by any press, in any land, in any age. No pains will be spared to approximate perfection in this regard.

WE WANT YOUR ORDER FOR THE BIRDS OF CALIFORNIA

NOW

In spite of the tremendous advances in the costs of labor and materials which go into the book making, we have not yet advanced our prices since 1916, and some of them stand just as originally outlined in 1910. It is evident that we must revise them at once, or at least as soon as we can prepare the final estimate. But we have a large number of old order blanks on hand which will be rendered obsolete by this process. And the new friends of the "Journal" and of the "M. C. O." have not had a fair chance at "The Birds of California" at the old prices.

Here is what we are willing to do, then. If you will use one of these enclosed blanks, and send it back to us with your signature, we will honor it even though the prices quoted on these obsolete forms are less by from twenty to sixty per cent than we must charge on the new schedule, effective August 1st. **We guarantee that this will save you money in every instance.** The situation in the book trade is such that even those (a very few) of our subscribers who paid their subscriptions as much as nine years ago, will have made good interest on their investment. You cannot lose now.

REMEMBER

That the volumes of "The Birds of California" will not only be as good as promised, but **as much better as possible.** With the exception of the full Morocco bindings, which we cannot promise and which are definitely withdrawn from sale, and with the further exception of platinotypes, which are "out of sight," we shall be able to indulge every luxury and every refinement of process originally promised, and as much more as the improvements of the past decade have made possible.

Remember, also, that in the cases of the Booklovers' Edition and the Large Paper Edition de luxe, we shall be giving you four volumes instead of the three originally promised. You will be getting four volumes of equal quality at the old price of three.

WHY DO WE DO THIS?

Well, chiefly out of gratitude to the Museum of Comparative Oölogy. If it hadn't been for its timely aid at a very critical period in our history, we should have

gone into bankruptcy. But we're all right now, and we're mighty grateful to the M. C. O. You belong to the M. C. O., or at least to "the M. C. O. crowd," and we want you to share in this testimonial of good fellowship.

And, then, of course, it is an advantage to us. We don't deny that. A good big bunch of "easy" subscriptions (easily obtained, that is) is a welcome asset, even if there isn't any margin of profit in it. You can't have too much of this "neutral stuff," which at the least pays its own expenses, when you are facing press-day.

We are not pretending to sell "below cost." We couldn't do that if we wanted to. But here is the secret of it. We are selling you the books **minus the selling cost**. That's why we can make you this

EXTRAORDINARY OFFER

(Good only till August 1st, 1920) through the courtesy of the M. C. O. management. Better sign up one of these blanks and fire it back at us **right away**—before you forget about it—because the "collecting season" is a very distracting time.

Cordially yours,

THE BIRDS OF CALIFORNIA PUBLISHING COMPANY,

Santa Barbara, California.



THE INVESTIGATOR

Sahuaro, or Giant Cactus, sacred to the Elf Owl (*Micropallas whitneyi*)

We Want

Members.

Condensed reports of annual activities of all our Members for publication in the next Journal.

A typical set of eggs *with nest* of every species of bird on earth.

A representative series, with or without nests, of all eggs which vary.

A small, local *normal* series (not less than four nor more than six sets), each taken in a single season, of the following species, and *from every locality in America*: Red-winged Blackbird, Cowbird, Brewer Blackbird, Grackle (*Quiscalus quiscula* and allied forms), Crow, Blue Jay, California Jay, English Sparrow, Vesper Sparrow, Song Sparrow (four sets only), Cliff Swallow, and House Wren.

Sets containing freak, or "odd" eggs of any sort, whether albinistic, melanistic, erythristic, or cyanic, runts, giants, distortions, ringed or capped, or abnormally spotted varieties, reversions, saturations, or misfits.

Bird Skins.

Bird Books.

Books on Oology in any language.

Colored plates of birds, the older the better.

Any illustration of the bird motif in primitive art, whether woven, baked, drawn, painted, carved, or otherwise embodied.

Photographs of nests or nest-and-eggs in situ, when accompanying original material.

Portraits in any medium of Members, or of other noted Ornithologists.

Cooperation, Cooperation, Cooperation!

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Santa Barbara, California

1921

VOL. II

NOS. 1-2

THE JOURNAL

of the Museum of Comparative Oology

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Intended eventually to be issued as a Quarterly, but now put out as a Semi-Annual

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NOS. 1 and 2

The Journal is sent gratis to Members of the Museum of Comparative Oology, of all classes, and to patrons of the institution. The subscription price to all others is One Dollar and Fifty Cents (or Eight Shillings) per annum. Additional copies of this issue 75 cents, postpaid.

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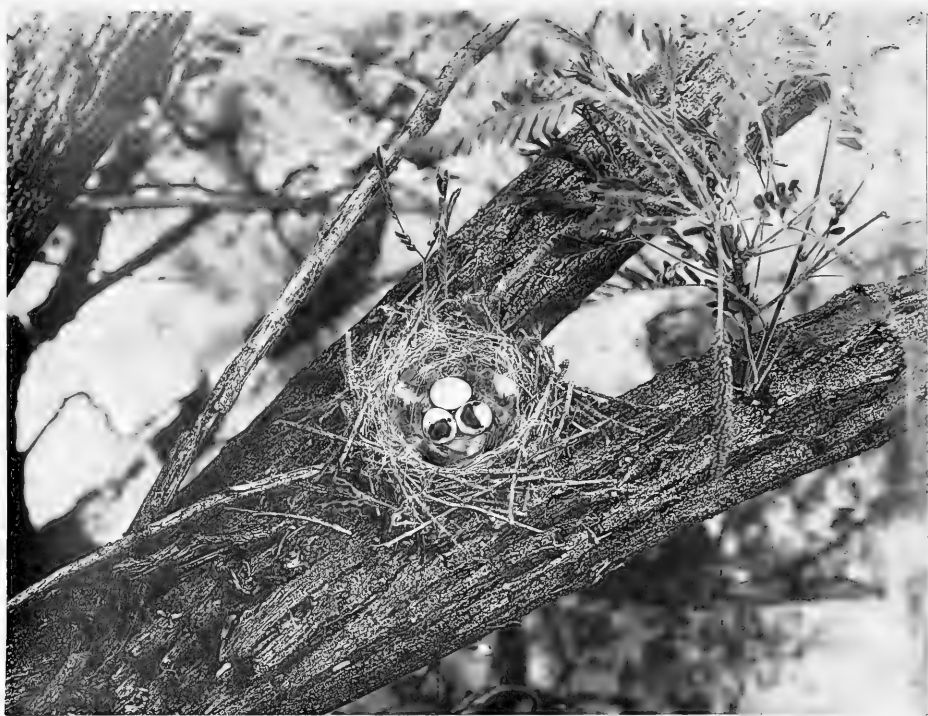
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FRONTISPIECE

Nest and Eggs of Vermilion Flycatcher (*Pyrocephalus rubinus*) in situ. Photo taken in the Mesquite Forest, May, 1917, by W. Leon Dawson. Note exceptional pattern of coloration as compared with normal type figures on page 25.

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[Issued August 16, 1921]

A CANDID EXAMINATION OF THE RIGHT TO COLLECT BIRDS' EGGS

By William Leon Dawson



WESTERN MOCKINGBIRD

THOSE who are well informed are aware of an increasing difference of opinion which is developing between the champions and votaries of zoological science, and the exponents of protection, the so-called humanitarian school. Whether this difference shall develop into an irrepressible conflict, or whether it will be found possible to reconcile all differences in a broader understanding of truth, depends, alike, upon the temper of the disputants, and upon their ability, or willingness, to reconcile facts. We will not stop to point out that Science has itself laid the foundations of Conservation, that its sober marshaling of facts has been the incentive and mainstay of those who would arrest the destructive processes, or who would secure to posterity the richest variety of life in the interests of a more genuine civilization. The fact is that a motley company has assembled under the banner of Conservation. This company includes protectionists, not a few, who neither know nor respect the older

scientific leaders; and some of the newer recruits are even willing to challenge the very rights of zoological investigation. "Why", say these sentimentalists, "if we believe in the conservation of life, should we permit *any* destruction of the living?" "And is it not inconsistent," argue these neophytes, "that the very advocates of conservation should be allowed exceptional privileges in the exploiting of animal life?" Some of this new school, bolder than the rest, affirm that scientific investigation is a mere sham, and that the scientific pretense is a cloak for blood-lust, or at least a perfectly useless survival of an attitude and method now discredited.

It is an historical fact that this new criticism has borne most heavily upon Oology and the Oologist. Of all zoological collecting the "robbing of birds' nests" has been declared the most offensive and the most useless. Whether this was chiefly because the collecting of birds' eggs has been considered a youthful pursuit, and on that account one to be suspected, or frowned upon by the adult and the blase, or whether, indeed, Oology has failed of realizing its own

aims, we cannot now consider. The point is that the right to collect birds' eggs has been sharply challenged, and a popular hue and cry has been raised which threatens the very life of this and, indeed, of all science. If there is a witch to hang or a "nigger" to burn, the sanctions of religion or virtue are as easily invoked as any other; and the mob will follow any leader, so her language be picturesque and denunciatory. True to form, scientists, a few of them, have joined the rout, and those who merely *kill* birds, or lure mammals to a lingering death, are loudest in their outcries against those, their brothers, who collect birds' eggs, and who are the appointed victims of today's intolerance.

But if the oologist is a culprit, he shall be tried before a fair tribunal. If he has incurred the public displeasure, he shall appear before a jury of his peers, and he shall be allowed counsel. If so be that he shall be found innocent either of economic damage or of moral offense, he will demand not only a member ticket in the Zoologist's Union, but admission to the council chamber of Conservation. Let's get right down to brass tacks, and have done henceforth with mutterings and grumbings.

Your Honor, and ladies and gentlemen of the jury, the prisoner at the bar, the Scientific Oologist, is accused of depleting and wasting the world's store of birds. He is accused of practicing unnecessary and wanton cruelties in the pursuit of his profession, and of debauching the youth of our land, who have been but lately and painfully weaned from the vice of bird-nesting. He is accused of idling, in the pursuit of mere egg-shells, when at the very least he might have been disarticulating bird bones, or profitably waylaying mice in death-traps. He is accused of profligacy in the pursuit of fantastic goals of science, alike undesirable and unattainable. To each and all of these charges we enter an emphatic plea of *not guilty*.

The Oologist has also been accused of finding pleasure in his pursuits afieled, in gloating in satisfaction over the out-spread treasures of his cabinets, and of having induced his lay friends to share his pleasures or to learn from him the lore of nature. He is even accused of daring to claim the discovery of certain important laws of phylogeny, and of having staked out claims to a larger realm of biological inquiry,—all in the name of his alleged science. To these latter charges we enter a cheerful plea of, Guilty as charged.

And now, lest we should seem to deal too flippantly with our critics, we confess at the outset two lines of inquiry which we believe ourselves bound to meet with the utmost candor. All doubts, however conceived, of the propriety of collecting birds' eggs, concern themselves, in the last analysis, with questions of sentiment or of economy. By sentiment, we do not mean anything unwholesome or unfounded. It is difficult to characterize by any other word this province of inquiry. For whether we speak of justice or mercy, of square-dealing or of humanity, we are discussing sentiments, and are sincerely asking ourselves what importance should be attached to them. In what belief or sentiment shall we ground our action with reference to the birds? If we treat them kindly, shall it be out of respect to the birds themselves? Or, if we lay a certain tax upon the bird world, shall we be acting in contravention of the rights of birds, and not rather in obedience to a higher interest, viz., the demands of human curiosity, the will to understand? Upon these answers the whole inquiry turns.

What, then, are the rights of birds? or have birds any rights? This is to inquire boldly what are the foundations of the moral order. From what quality or endowment do *rights* derive? And we answer, as boldly, from enduring moral values only. Is the bird an end-in-itself? Or does its apparent value derive solely from its relation to self-conscious (hence, immortal) beings? We answer unhesitatingly, the latter. The value of the bird is a derived value, a relative value only. If the bird is, indeed, a sort of god, unique, self-conscious, immortal, then are we rebuked who would molest its peace or hinder its destiny. If, however, it is only a part of a natural and perishable order, if it is only an occupant of one of the many blind alleys through which Nature or the Creative Urge or the Infinite Intelligence (call it what you will) has sought (and *sought*

in vain) to achieve self-consciousness, reason, imperishable affection, and all those God-like attributes which must inhere in the very nature of creative power, then are we dealing with objects and examples instead of powers, with mechanisms instead of persons,—with mechanisms, moreover, which at best are but a little more intricate and wonderful than the mechanism of the oyster, the starfish, the flower, the crystal, yea, even the molecule or the atom itself. Or, if we try to distinguish the living from the inert, we shall only find that all things live and move and have a sort of being; that is, that they are subjects of incessant vibration, more or less complicated. Mere complexity of organization, although it does lend greatly to our interest in an object, does not serve to differentiate it in value as a self-end from a creature of the feeblest organization. For unless we introduce into our conception, or concede to an animate object, such as a bird, a spiritual organization, an abiding and imperishable significance, an ability to reflect or to reciprocate the divine approach through the eternal ages, we have nothing after all but a mechanism a little more cunningly contrived, an assemblage of vibrant atoms temporarily associated, and liable at any moment to absolute and irreparable dissolution. Some people affect to believe that a human being is also such an object. For such we have, of course, no word. Our value concepts lie too far apart for profitable discussion. But for those who do accept a spiritistic hypothesis upon any basis whatever, for those who do admit "a transcendental order," or who are capable of expressing value concepts, for such we have a plain message. You believe that worth inheres in spiritual qualities and abiding relationships. Good! They do. But where will you find these values, save in man? Where else do self-consciousness, or better still, God-consciousness and the sense of imperishable relationship exist? If you believe that they exist in the bird, you are bound to respect that bird's personality. You are bound forever after to defend that bird's right to life, liberty and the pursuit of happiness. You are bound to defend its rights of possession, including that of a nest. You are bound to regard such a right as inalienable, indefeasible, inviolable, and constitutionally inherent, and you will respect that right as unto a neighbor whom you expect to meet "on Heaven's shore." For our part, and speaking by and large on behalf of the oological craft, we recognize no such right, and confess no obligations in regard to the bird world save those which are derived from their service or interest or value to human kind.

These last-named obligations are, of course, very real, and we are prepared to discuss them with the utmost candor. But the discussion is one of human rights, and not of bird rights. Speaking philosophically and strictly, there is no such thing as an obligation owed to a bird, any more than there is an obligation owed to a lizard or a lobster, a tree or a thistle, or, for the matter of that, a clod or a pebble. A cruel doctrine this? Not necessarily; especially if it happens to be true.

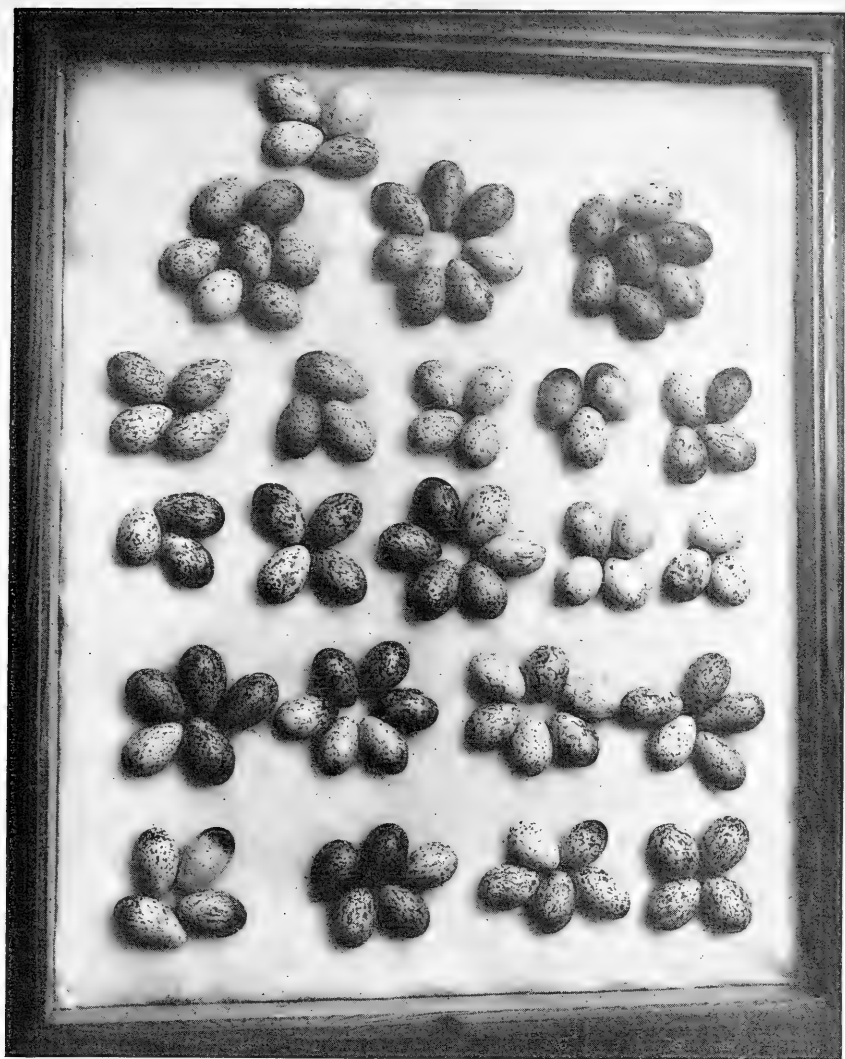
Shall we, then, destroy life wantonly or recklessly? or shall we appropriate its treasures without compunction? That does not follow. Above all, shall we allow ourselves to torture animate objects, or to rob them of food, shelter, or offspring under circumstances which suggest or foster cruelty? Ah, this is a vastly different matter. Let us examine it. And let us translate the discussion immediately into terms of our own interest. Quite apart now from economic or scientific considerations, which we shall take up elsewhere, the question is, shall we encourage our boys to rob birds' nests in disregard of the manifest anxieties of the parent birds. Emphatically, No! But why not, if, as we claim, the bird is not an end in itself, and if its joys and sorrows have no absolute or imperishable significance? Well, if the bird is not an end in itself, the boy is. The indiscriminate or uninstructed robbing of birds' nests is a cruel practice. Its pursuit will develop in the boy a certain degree of recklessness, a disregard for apparent rights, which is liable to develop into a disregard of real rights, viz., human rights. For it is quite true that the display of a regard for evident (apparent) rights, as exhibited in the solicitude of a mother bird for her nest or of a mother mouse for her shivering brood, is an excellent school and discipline for the appreciation and display of real regards. But, be it clearly understood, this dis-

ciplinary value, this "humane" treatment of the animal world, is a derived and human value. It is based squarely on human rights, and not upon bird rights in any absolute sense.

The members of the Audubon Society, therefore, and the supporters of all other humanitarian movements are right in placing great emphasis upon the value of the humane treatment of birds and of all other non-harmful animals. We honor and support them in this. The "protectionists" are wrong, however, when their zeal leads them, as it sometimes does, to ground their case upon claims of absolute instead of relative rights for birds. It is for this reason, chiefly, that certain misguided zealots who misrepresent the bird-protection movement, have begun to question the right of scientific investigation. These people, leaders, some of them, flushed with recent successes (successes to which the efforts of the ablest scientists have contributed), have suddenly begun to challenge the right of Science to appropriate *any* of the objects of Nature. Or, if they concede such a right, they do it grudgingly, with illconcealed purpose to deny that right *in toto* as soon as they dare. Meanwhile, they worry sober scientists like procurators, and they haggle disgracefully over questions of when and how much. It is time now for Science to challenge this maudlin officiousness and to confront it with the sober fact of its *false philosophy*. The bird is *not* an end in itself, and its claims are not absolute.

Science bases its claims squarely upon the fact that the value of animal life is not absolute. Only human values are or possibly can be absolute. So long as the pursuits of biological science continue to occupy the human mind, Science will continue to make requisition upon the objects of nature for her studies. The only reason protectionists (of a certain morbid type) do not attack the right of our great educational institutions to dissect in their laboratories bushels of starfish and barrels of frogs and sundry hecatombs of cats (the more the merrier!)—the only reason, I say, is that they do not *dare* to. The good sense of the public wouldn't stand for it. But these same faddists have found a victim, or think they have. It is the Museum of Comparative Oology. "What! Oology a science! The insolence of the thing! Brethren, here is mutton! *Allons!*" And so Pycraft leads the attack (albeit haltingly) and sundry officials of humanitarian societies, both the overpaid and the underpaid, are training protectionistic guns upon the breach, and the merry war is on. We are neither "too proud to fight" nor too stupid to drag reluctant neutrals into the conflict. We are quite prepared, if necessary, to be the *enfant terrible* of the zoological family; but we will not be the goat. We are not prepared to bear the brunt of any hypocritical fusilade while smug professors of avian anatomy set on their hounds, or while comfortable curators of mummified mole-skins roll pious eyes heavenward and thank their divinities that they *no longer* collect birds' eggs. Gentlemen, make no mistake, the ultra-protectionist, nourished for decades on an unsound philosophy, has marked you also for the slaughter. He is about to say with the Barber of Berlin—he of the upturned moustaches—"You are next." It matters little that we have right on our side, unless we are willing to stand by our guns. There is, however, nothing to fear except our own cowardice. Caution! Caution! Wherefore? Let the other fellow be cautious once, instead of turning loose a lot of irresponsible tittle-tattle which, if suffered to go unrebuked or with rythm unchecked, would shake down the bridge which joins sanity to science.

Gentlemen, the *Egg* happens to be one of the most intimate and universal of nature's phenomena. It shelters, or has sheltered, all of life above the lowest strata. In the case of the Class Aves, Birds, the egg has recorded the accumulated progress of aeons of biological history. It is today the only independent, coordinate source of such information existing outside the somatic envelope. It is possible, as our critics suggest, that the interrelational problem set by the egg may prove to be one of almost insuperable difficulty. It is even conceivable that the outcome of labored investigations yet to be undertaken will be disappointing. We do not know. Columbus did not know when he set sail from the port of Palos whether he should discover a new world or a grave. But any bald



AMERICAN RAVEN (*Corvus corax sinuatus*) CASE XXII, DRAWER 6, M. C. O.

or envious assertion that we shall discover nothing will have about as much weight with us, or ultimately with the public, as did the opinion of the courtiers who scoffed that day on the dock at Palos. A negative assertion reveals nothing beyond the degree of enlightenment (or unenlightenment) of the observer.

The Museum of Comparative Oology with its widely affiliated membership will go calmly, nay, even joyously, on with its task of assembling all possible evidence of the Story of Life as recorded in the egg. It will do so in the full conviction that it is serving a public need, and in the full assurance that it is furnishing instructive entertainment to visiting thousands. Though its ministrations should multiply, and its supporters should number tens of thousands, instead of hundreds, its collections will never, by any conceivable stretch of the imagination, contain as much oological material as is destroyed by the blue jays of California in a single season.

Lack of space forbids consideration of the economic question, save as more or less incidentally touched upon in the following papers, but our friends may rest assured that we have absolutely nothing to fear on this point. Except

in the rarest instances, and these we are as quick to admonish as are any of our critics, the activities of the supporters of this institution have been sincerely dedicated to the cause of conservation, to the conscientious upbuilding and maintenance of the infinite variety of nature's abundance.

A LOCAL MISAPPREHENSION

There still exists in the public mind a considerable prejudice against oological collecting. That this prejudice found some justification in the old day, when every schoolboy had a sawdust box and a boundless ambition to rob birds' nests, there can be no denying. There is no denying either that some collectors of birds' eggs have exhibited a wanton disregard not only of the requirements of conservation, but of the decent opinions of their fellow men. Selfishness is as offensive in this field as in any other, and ruthlessness has no right to masquerade under the mantle of Science. Our sincere aim must be to serve Science, not to exploit her, and in this service we must respect such sentiment as is in strict accordance with facts.

With so much by way of concession, it remains glaringly true that criticism of oological science *per se* is founded on ignorance and is fed by sentimentality and prejudice. So conceived and so fostered it is exposed to grave danger of exaggeration and misstatement in its attempt to discredit science. Such a criticism was recently levelled at the M. C. O. by the correspondent of a local paper. It was a beautiful effort, and the editor takes pleasure in quoting liberally from its poetical passages; and then adds a few comments of his own.

Said our critic: "The professional collector makes his harvest in the nesting season and he not only slays the bird for the sake of its skin, but he takes its eggs, preventing not alone multiplication of the species, but its perpetuation. He makes it his business to know where the shy, rare birds have their habitat, and their manner of nesting, that he may the more surely track them to their homes and possess himself of their homes as well as destroy their progeny. No last year's nest ravaged by wind and storm will satisfy this fastidious and intelligent robber. He wants and he collects the dainty structures when they are freshly built and unsoiled, and no rain has fallen upon them to mar their beauty." [Very prettily said, and quite true—this last sentence. The M. C. O. bows its acknowledgements].

"The professional collector as a rule has little regard for the perpetuation of any bird species, no matter how rare or beautiful it may be, or of what service to mankind. He increases his collection by a system of exchange with men of his kind the world over. The rarer and more beautiful or more interesting his bird-victims, the more important it is to him to collect as many eggs as he can for his capital in trade and to sell for cold cash—and sometimes a pretty sum they bring—to other collectors. If by chance they become extinct, the value of what he has is enhanced. He knows the market quotations on bird-eggs as a dealer in farm products knows the market quotations on the eggs of common poultry, and often claims prestige for certain features of his collection by quoting these values.

"How much Santa Barbara has suffered through depredations of this sort can only be guessed, but thinking persons may form some estimate from their own observations. To cite one instance alone:

"Twelve years ago the beautiful gardens of Santa Barbara were alive with hummingbirds, the daintiest, the most marvelously plumaged, the most exquisite of all the great bird family on warm days. They flitted from blossom to blossom, they swarmed in pairs, and it often seemed in flocks, rising from fountains or to sip at dripping hydrants. They perched on swaying branches and chorused their funny, unmelodious buzzing songs. They were like rainbows flashing colors through the garden air everywhere. Poems were written on them. No description of the town was complete that did not mention them. Santa Barbara and

Montecito were celebrated for them. To destroy one or to rob a nest was accounted desecration.

"Today where are they?

"Now and then, but with comparative rarity they are seen. In a few secluded gardens they still nest and raise an occasional brood, and on some of the larger estates they are protected and may be found more frequently but in diminished numbers.

"Where have they gone?

"Ask the collector who maintains in his exchange drawers their nests in all their virgin delicacy of weave, by the down, often with the forked twigs where they have been securely hidden, as their builders thought, beneath canopied foliage. Ask the collector who has sent their wee eggs out by the hundred and perhaps by the thousands, each one a potential winged spirit of beauty incarnate, of which Santa Barbara has been robbed—and who still keeps them enumerated on his exchange list."

To this we replied as follows:

My attention has just been called to a letter which appeared in the columns of your excellent paper on Monday, December 22. Although there was no mention of names and the communication was unsigned, it was plain that our fair critic had in mind the institution which I have the honor to represent. It is my duty, therefore, to try to correct, if possible, the misapprehensions under which your correspondent appears to be laboring.

In plain English the indictment against the Museum of Comparative Oology appears to contain three counts:

First, that we are an important factor in the destruction of bird life;

Second, that we are mercenary; and,

Third, and more specifically, that we are responsible for an alleged decrease in the number of Hummingbirds in Santa Barbara.

To each of these counts we plead Not Guilty.

To take up the second count first, I may say, briefly, that we never sell eggs, and that we buy only of original collectors and pay sums equivalent to day wages. The Museum of Comparative Oology is sternly set against the commercialization of oological collecting; and, were there space to do so, we could show your correspondent that we are at the present time helping to revise current practice in this regard.

Nor do we carry on exchanges in any such wholesale or indiscriminate fashion as suggested by our critic. The vision of the M. C. O. shipping our Hummingbirds' eggs "by the hundreds and perhaps by the thousands" is very diverting. As a matter of fact, we have disposed of about eleven sets of Hummingbirds' eggs by exchange in the four years of our institutional life. This, in view of the fact that no less than twenty-five thousand Hummingbirds nest annually within a seven-mile radius of Santa Barbara, is not a very serious matter—far less than the depredations of a single stray cat. There is no shortage in hummers in Santa Barbara, save in the case of the resident Anna Hummer, one of our four breeding species, and this was caused by the little freeze of 1913.

To take up now the first charge, viz., that we are an important factor in the destruction of bird life, I have to say, first, that the killing of birds and the taking of their eggs fall into two distinct categories. When you kill a bird, of course that is the end of it. For that reason the Museum of Comparative Oology is extremely judicious in its requisition upon bird-life. We do not exchange bird-skins except in the rarest instances, and then only to reputable public institutions whose credentials of service are as clear as our own. It is our aim to provide only our immediate clientele, viz., the Santa Barbara public, with a sufficient representation of bird-skins for study purposes. Our total accumulation of birdskins today does not represent the toll levied by three female cats. The correct identification of birds is, however, impossible without occasional reference to a collection of skins.

Regarding the collecting of birds' eggs, it is true, as the correspondent suggests, that the operations of collectors might figure as a factor in the case of

a few very rare or vanishing species. These matters are wisely regulated by the State, and lately by the Federal Government, and we do not apprehend any further trouble along this line. But in regard to the loss occasioned by the general collecting of birds' eggs for scientific purposes, I have to say, very emphatically, that the danger is enormously exaggerated in the minds of the uninformed. In fact, if regard be had only to scientific institutions, the danger does not exist.

The misapprehension, which does exist, ensues from the underestimation of three important factors:

First, the enormous abundance of bird-life;

Second, the enormous levy which the world of breeding birds is fitted to bear, and does bear in the ordinary course of nature, apart from human agency; and,

Third (really a restatement of the second), the enormous fecundity of birds, and especially of the smaller species. The casual observer has no conception of the aggregate number of breeding birds of the smaller species. Santa Barbara is not especially favored in this regard, yet I venture to assert that no less than a quarter of a million birds of all species breed within the seven-mile limit already referred to. The annual requisition made in this home area by the M. C. O. is not over one hundred nests, all immediately replacable, as we shall presently see.

The breeding cycle of the birds is geared up to stand a heavy strain. It is annually subjected to a toll so vast that the peculations of the oologist do not and cannot seriously figure. To take a single illustration, that of the California Jay. It has been estimated that the aggregate annual destruction of bird's eggs chargeable to this species alone, within California, amounts to 29,000,000 sets, or clutches. I believe these figures are way within the mark. When to this is added the destruction occasioned by Cooper Hawks, owls (of certain species only), cats, foxes, coyotes, weasels, chipmunks and snakes, the imagination is fairly staggered. Yet so far as all these adverse influences are concerned, the bird-world pays the price cheerfully through the provision of an additional number of eggs and through repeated nestings.

This last point is of the utmost importance. The inference of our critic that a bird's hopes are done for because its nest is robbed, is utterly unwarranted by the facts. Birds, all birds, except some of the largest and rarest species, when their nests are robbed immediately set about building another. The smaller species accomplish this within an incredibly short space of time, sometimes as little as six days. The average "recovery time" as we call it, for all passerine birds, is eleven days. Ponder that, please. A linnet whose nest is taken today, will have another nest with a full complement of eggs eleven days later. Even larger birds are subject to the same law. A typical instance has just come to hand. The instance is vouched for by two well-known collectors at Sespe, whose names I can give. A Barn Owl's nest was found which contained nine eggs. As this was a good number, the set was taken; and, for experiment's sake, six successive sets of nine eggs each were taken from that same pair of birds using the same nesting hole in that one season. The seventh set, of nine eggs, was left, and the birds hatched and reared this brood successfully. The net result, so far as the birds were concerned, was precisely the same as if the birds had never been touched. The birds had made their annual contribution toward the maintenance of the species.

Now conscientious collectors do not make a practice of taking second sets, save in rare instances and then only to accomplish definite purposes, as to carry out constancy and variation studies. The net annual effect upon the status of bird life as the result of our operations is almost infinitesimal. The loss is made good.

Of the benefits derived by science from our studies, there is not space to speak here. We can only assure our fair critic that there are very substantial benefits; and that we are privileged to afford pleasure and legitimate mental satisfaction to some thousands of visitors whose appreciation of our work is unqualified. Our pursuit is just as legitimate as a scientific investigation of poultry

raising, and our treatment of birds will compare favorably with the average human treatment of hens.

If this explanation is not as satisfying as it is candid, I trust that our critic will honor the Museum of Comparative Oology by an early visit, and will satisfy herself at first hands.

Respectfully,

William Leon Dawson, Director.

WORLD ADVERTISING FOR THE MUSEUM OF COMPARATIVE OOLOGY

Wherein will be discovered more meat than the title promises.

We had suspected at the outset that there was a good deal of dynamite packed away in the word "*Cooperation.*" A cooperative museum on a world-wide scale is, now that you think of it, a virtually untried idea. Of course many large museums have interested themselves in fields correspondingly large, and have had representatives, paid or volunteer, in many parts of the earth. But a deliberate effort to enlist world-wide support in the upbuilding of a museum of natural science whose treasures should *belong* to the scientific world, is a new thing, and a movement fraught with the pleasantest consequences. At least we who believe in the values of oological study think so. It is natural enough, then, that others who are wedded to the old order of thinking, or who are committed to institutions of fixed traditions, should differ from us, or should even seek to discredit our policies. There have been several criticisms launched against the Museum of Comparative Oology during the part year, some guarded and courteous, others explicit and denunciatory. Perhaps the most notable of many strictures was that made by "*The Times*" of London in an unsigned "*leader*", or as we in America would say, editorial, under date of July 15, 1920. Coming from so high a source, it was, naturally, provocative of attention; and having the seeming sanction of authority, its accusations have been widely echoed by the provincial press. So far as we can judge, the publication of the article entitled "*A New Threat to Bird Life,*" and presumed to have been written by W. P. Pycraft, of the British Museum, has had only two marked results. It has secured for the little Museum of Santa Barbara a degree of publicity which money could not have paid for. This publicity has been of a most helpful nature, for it has brought our claims to the attention of collectors all over the world. Men whom we never heard of before, and whom in the nature of the case, we could not have discovered by any direct method of approach, have written in to ask what they could do to further our cause. As a result, we have added many strong names to our growing list of Members; for of course no competent oologist will be daunted by a specious show of authority, nor has any one of the craft been misled by arguments so utterly at variance with known facts. Our prettiest thanks, therefore, are due, and are hereby tendered to Brother Pycraft, if it were he, and to the editorial staff of the London "*Times*" for this helpful act of cooperation.

On the other hand, it is unquestionably true that this and similar utterances, notably the one bearing W. P. Pycraft's signature, and which appeared in the "*Illustrated London News,*" of September 4, 1920, have done something to mislead the judgment of laymen who have the cause of conservation at heart, and to excite the hostility of such as care to be "*agin something,*" and who rush off, baying, in the direction of the pointed finger. Why Mr. Pycraft or his confreres should wish to divert the energies of the grand conservational fox-chase by starting a rabbit-hunt on the side, we do not pretend to know. But one thing is certain, this rabbit will not run.

We take pleasure in printing herewith the text of the "*Times Leader*":

"A NEW THREAT TO BIRDS"

"The foundation at Santa Barbara, California, of a 'World Museum of Birds' Eggs" must excite misgivings in the minds of bird lovers. These will not

be dispelled by the recently issued journal of the new institution. The Museum proposes to secure a complete collection of the eggs of the birds of the world, together with "as many nests and skins as are necessary to enable the eggs to tell their full story." There are some birds whose eggs are invariable in colour, and in these cases the Museum is to be content with a dozen sets of each. But when the colours, or markings, or shapes vary, as happens with very large numbers of species, as many as eighty sets of each are aimed at. Collectors in all parts of the world are to be encouraged, and the managers are ready to beg eggs, to exchange for them, or to buy them. Birds have many enemies. The encroachment of civilization is limiting their range. The plumage trade is taking a heavy toll. The farmer and the gardener, who do not know their friends, continue to slaughter them. We need not discuss the relative demerits of these three agencies of destruction. But the collector, acting either in the supposed interest of science, or from the lust of acquisitiveness, deserves a special word. He is alert, well informed, and insatiable. If a bird be rare or hitherto unknown in a locality, if a species be nearly extinct, the collector recognizes a valuable prey, and hastens to secure it. A just indignation has been aroused against plume-hunters, who, in quest of gain, have plundered breeding-grounds and attacked their guardians. But it should be remembered that even in Great Britain, when lovers of birds are trying to protest the nests of rare breeders, they have to keep watch and ward against the emissaries of collectors of eggs. The creation of a new demand, with wide ambitions and ample funds, may well be disastrous. The authorities of the Museum claim that their object is scientific. They assert that no avian structure is more significant than the egg, and by egg they mean 'egg-shell,' for they give the usual instructions as to the removal of the contents. They propose to discover the phylogeny of birds from study of the shells. They claim that the laws they will ascertain will throw 'a flood of light on the whence and the whither of life itself.' If these pretensions were just, eggs would indeed be golden, and there would be additional reason for not helping to kill the birds that lay them. But already many great museums with collections of eggs exist. Already many highly-skilled observers have worked on a rich material, and have reached a well-founded and almost unanimous verdict that few structures have less phylogenetic significance than the eggs of birds."

In so far as these and subsequent criticisms are entitled to serious consideration, we have endeavored to meet the main issue fairly in the preceding articles entitled "A Candid Consideration," etc.; but in view of manifest inaccuracies, not to say insincerities of statement in some of these attacks, we propose to indulge, in this review, a somewhat less guarded utterance. However, before we pass on to judgment, let us mark how this leader was received at home. Upon the publication of this editorial, our good friend, Kenneth L. Skinner, editor of the "Oologists Exchange and Mart" (now "The Oologists Record"), addressed the following communication to the editor of "The Times":

"The Editor," "The Times",

Printing House Square, E. C. 4.

Sir:

"I read with interest the leading article in your issue of the 15th. instant under the heading 'A New Threat to Birds', and, as a member of the Honorary Board of Foreign Advisors to the Museum of Comparative Oology, representing Continental Europe, I hope I may be permitted some brief comment upon it.

"The Museum of Comparative Oology has been established some time, its Charter was granted by the State of California on the 27th, January 1916, but your article would appear to have been inspired by the last issue of the Museum Journal, dated 31st March last. If this be the case, it would have been fairer had your leader writer made himself more conversant with the avowed objects of the institution as set for in the Journal of that date. He would have seen that the Director of the Museum makes there a powerful appeal for the re-

striction of the unscientific collection of eggs by individuals, who amass them in cabinets for their own private gratification. He went further than that and pointed to the fact that many large public museums had had egg collections bequeathed to them only to take so little care of them as to render them quite valueless. He pointed out that the Charter of his own institution would prevent such abuse of valuable scientific material, and indeed the list of the Museum's patrons and supporters is in itself a sufficient guarantee for the continuity of careful custodianship of the eggs entrusted to it.

"The Director's views as to the private ownership of objects of scientific interest are so sound that they are worth quoting. On page 19 of the Journal referred to above, after deprecating the methods of some collectors, he goes on



THE WREN DRAWER, RUNNING SERIES, CASE XIII, DRAWER 5, M. C. O.

to say 'The agitation in favor of conservatism has left us with another legacy more important than any of the foregoing. It has taught us that the things of nature belong to the public, and that the possession of these things must justify, or render an equivalent in service. This is the square basis of the modern preference for public museums. The private ownership of material which came from the public and which, therefore, belongs to the public, is an anomaly over which an enlightened democracy is increasingly restive.'

"The agitation referred to was that of the Audubonites in America which resulted in new legislation which yet found a place for, and recognized, the interests of the scientific collector of eggs. The Audubon Society, like those responsible for the introduction and failure of the Plumage Bill in our own legislature, took such an uncompromising attitude that they lost considerably by it. The lesson should not be lost upon those who now so sedulously malign the oologist in this country.

"It does at first sight seem something like vandalism to suggest that a Museum should have as many as 80 sets of the eggs of some species which vary to a very great extent, but happily there are not many species that would need to be so represented in a great international collection of this sort. I wonder,

however, if the layman has any idea of numbers in relation to birds' eggs. A friend of mine, now in the North of Norway, was taken to a small island near Tromsøe to see the nesting place of one of the gulls and secured a few sets for his collection. He was informed that, owing to a present scarcity of the fish upon which these gulls subsist, there were fewer birds nesting there than usual, but that in most years it was no uncommon thing for 20,000 eggs of that one species to be gathered there for human food.

"Another instance, which throws light on this subject, is the fact that an English collector, who wished to secure a set of the rare blue form of the eggs of the Common Plover, so well known as a delicacy, was able, after inspecting over 450,000 eggs gathered in one district during about 20 years for the London market, to secure the one set required.

"The anti-oologist, who usually has little or no knowledge of bird life, points to the extreme rarity of such birds as the Buzzard and Peregrine Falcon and the Bittern and Great Bustard and lays this at the door of the collector. It is well known however that game preservers are responsible for the scarcity of the first two species named while the others have disappeared as the result of the reclamation, during the past 100 years or so, of our larger stretches of fen and heath land.

"To show how birds will multiply, in spite of the sternest measures taken to exterminate them; and even when their nests are placed in the most obvious and accessible places, one has only to point to the cherry growing districts of Mid-Kent, where every Blackbird and Thrush is shot when the cherries are ripe, and where every boy is encouraged to destroy their nests and young but where there is still no appreciable diminution in the numbers of these most treasured songsters.

"I think I have said enough to prove that the toll that egg collectors take of our bird life is infinitesimal. We may, however, differ on the ethics of the matter just as many people differ as to the ethics of fox hunting and angling and yet do not seek to pillory those who follow these pursuits. Yet even those who would deny to individuals the right to indulge this scientific hobby might at least appreciate the fact that the Museum of Comparative Oology has undertaken a work for which posterity may well be grateful. Had there been such an institution a hundred years ago we should not now lament the dearth of eggs of the Great Auk, once so common, but which was not exterminated by egg collectors, or of other species which will probably share the fate of that most interesting bird as the spread of population denies them foothold. I am, Sir,

Your obedient Servant,"

(Signed) *Kenneth L. Skinner.*

Weybridge, 17th July, 1920.

This communication was *not* published by the Times, a circumstance which we cannot but regard as unfortunate, in view of the Briton's traditional love of fair play. We submit that Mr. Skinner's rejoinder constitutes as judicious and temperate a defense as the most fastidious editor could require; while the writer's ability and first-hand acquaintance with the facts speak for themselves.

Some two months later the signed article already referred to appeared in "*The Illustrated London News*." Unfortunately our lack of space forbids the reproduction of Mr. Pycraft's later article entire, but it is so full of ill-tempered accusations, innuendoes, exaggerations, and "scare stuff," that its misrepresentations cannot be allowed to pass unnoticed. For example, the critic repeats his assumption of "eighty species" in the following words: "But where the coloration or the shape varies, as is the case with a very considerable number of species, as many as eighty clutches of each species is to be collected." The only suggestion of Pycraft's "eighty clutches," as a norm, contained in any of my writings, is the following (*Journal of the Museum of Comparative Oology*, Volume 1, Number 1, Page 15); "California Jays' eggs, on the other hand, are highly variable in color, and to a series of forty sets showing the range of this variation, may possibly be added a grouping of forty series from as many localities, to establish whether or



NESTS AND EGGS OF THE CRIMSON-LEGGED CRAKE (*Amaurornis akool*). TAKEN BY REV. H. R. CALDWELL, NEAR YENPING, CHINA. SEE CASE XXII, DRAWER 15, M. C. O.

not the degree and quality of variation is dependent upon local conditions. This is a large and fortunately exceptional order." We said *series* not clutches, so the case in this particular instance is really worse than represented by our critic. We are guilty—in case of the California Jay—and we will provide house room for *all* the Jays' eggs which *anybody, anywhere* will collect for us; because we hold this entire group of birds guilty of the most enormous destruction of bird life. But we have no intention of indulging series of "eighty clutches each" of beneficial or even of neutral species.

Again: "It is obvious that if the Members of this band [i.e. The Members of the Museum of Comparative Oology] fulfil what is expected of them, their ravages, so far as the British Islands are concerned, will be very serious." Dear! dear! Serious enough, no doubt, to provoke the attention of the village constable, as well as this distinguished exponent of the British Museum. Listen brother: The entire world toll of birds' eggs exacted by the Museum of Comparative Oology during the calendar year 1920 was equal to, but did not exceed, one hundredth of one per cent of the destruction to bird life occasioned by the Jays of Santa Barbara County last year. One despairs of achieving sanity in conservation or science, if its case is to be presented by one so utterly wanting in a sense of proportion as is Mr. Pycraft.

"For each [Member of the M. C. O.] is asked, after filling his own cabinets, to do his best to fill those of any other collector from here to New Zealand." Not guilty as charged! This institution is interested in building up a centralized collection upon cooperative lines, which by the greatest *economy* of material shall compass the broadest service. That such a policy as ours will tend to the greatest *conservation of bird's eggs* is self-evident to any one who is at pains to understand our real aims instead of trying to slash at imaginary bogies over our shoulders. By way of making himself solid with the profession, our critic says:

"That much good work has been done by egg collectors, and that many valuable facts have been brought to light by their work, is beyond dispute, [remember this, please] but it is no less certain that the scope of their investigations is strictly limited." That is to say, Mr. Pycraft limits it. The case is therefore closed! That Mr. Pycraft is entitled to an honest difference of opinion from ours regarding the value of oological investigation none would deny. Mr. Pycraft is an avian anatomist, an able if somewhat incoherent concoctor of bird-books, and his methods of approach are naturally quite his own. But that this gentleman, in defence of the British Museum, that supposedly inviolable ark of safety, or in the name of an outworn ornithological creed, should seek to call down upon our heads the vials of protectionistic wrath is neither—well—sportsmanlike, nor just. Mr. Pycraft avers as a *casus belli* against our institution that "already many great Museums with collectors of eggs exist." Precisely! But what are the managers of these great Museums doing with these eggs? Hiding them away shamefacedly, in forgotten galleries, or placing them under the administration of men who openly ridicule their appointed task. If there were a single well-appointed, thorough-going research institution in oology in the world, or if there was a single "great museum" giving adequate attention to this department, administered under a man of vision, the Museum of Comparative Oology would have had little excuse for entering the field. The National Museum of Washington comes, perhaps, the nearest to being such an institution, for its eggs are at least in a safe place, and its buried treasures are being reviewed by a painstaking and competent oologist, Mr. A. C. Bent; but I violate no confidences when I say that the egg collections of the National Museum both in concept and execution leave much to be desired. We do not wish to be presumptuous, but London started this thing, and it would rather look to us as if the British Museum, through its chosen representative, were trying to justify its own slack administration in this department by raising false issues.

It is to laugh of course. And we repeat that so far as the world's collectors of birds' eggs are concerned, we could ask no finer line of advertising than this which Brother Pycraft has so generously lavished upon us. Most ornithologists know the narrowness, the illiberality, and the essential falsity of Mr. Pycraft's assertions, while every collector is grateful to him for having pointed out alike the necessity of cooperation and the means by which it may be accomplished.

But there is a more serious side to this anti-everything crusade of which Mr. Pycraft has become the latest exponent. In the first place, it tends to confuse the public mind about the real issues of conservation; and in the second place, it affronts the very charter of zoological science. Evidence is not wanting that the campaign, so conspicuously launched by a poseur, is bearing fruit alike in England and America. Of course it is an open secret among the well informed that the discordant elements in British ornithological circles are fighting over old battles in our name. We are not so conceited as to suppose that all this pother is about *us*. We are just a text dragged in to justify renewed pounding of Protectionistic pulpits. But the public doesn't know this and the public is being deceived. Little me-toos are dutifully repeating the sentiments of the London gods, and the virus of suspicion, exaggeration, and misrepresentation, is filtering down. For example—a departmental editor of "The Family Herald and Weekly Star" of Montreal, Canada, under the caption of "A New Bird Enemy," and over the initials "E. I." denounces the proposals of the Museum of Comparative Oology as "a wicked scheme." Verily the author of the once popular "Bird Nesting" was doing penance for the sins of his youth. For it was the same brother [peace to his ashes!] who said, in 1882, "It is well, therefore, particularly if at a distance from home, to take all the eggs at once, and the nest along with them, if you need it; nor, if you propose to make a close study of oology, will a single set, or, sometimes even a dozen sets, suffice to show extremes of variation."

And now comes the exhibit of "The Royal Society for the Protection of Birds," 23, Queen Anne's Gate, London, S. W. I. A typewritten circular com-

munication signed by Miss L. Gardiner, the secretary, under date of November 9, 1920, read as follows, *verbatim et literatim*:

"May we beg your attention to the first article—"Egg-Shells"—in the accompanying number of "Bird Notes and News," and at the same time express the earnest hope of the Council of this Society that the matter may be brought before your Members, and that they may be induced to assist us in our efforts to preserve Birdlife in place of encouraging the aspirations of the Santa Barbara Musuem of Geology. [Sic.]

"The danger to our rarer species through the present craze for egg-collecting is extremely serious. Our Watchers Committee has to employ numerous Watchers to guard breeding places up and down the country from the efforts of collectors to secure, by hook or by crook, clutches of rare eggs.

"The Curator of the American Musuem [sic.] of Natural History (New York) writes to us: 'I am glad to learn that Mr. Dawson has not succeeded in securing the co-operation of English Ornithologists. His following in this country, outside California, is very limited.'"

"I am, dear Madam,

Yours faithfully,

(Signed) L. Gardiner."

We did not suppose that our good friend Dr. F. A. Lucas, the Director of the American "Musuem" of Natural History, had been heaving any rocks at the "Santa Barbara Musuem of Geology" [sic] while our back was turned, but in order to be particularly sure, we wrote him, and received the following:

"My dear Mr. Dawson:

I do not know which Curator of the American Museum of Natural History wrote the derogatory remarks in regard to the Museum of Oology, but it was not the Director, who hopes that all is going well with you. Certainly your list of members shows that the Museum is in a flourishing condition."

We have not had the pleasure of reading the article referred to by Miss Gardiner, but we trust that in this Brother Pycraft has fully realized the immediate objects which he set out to attain. It is comparatively easy, of course, to mislead a group of sentimental women and through them to delude the youth of the land, but it is hardly a task for red-blooded men. We wonder if this gentleman is a quite normal product of, say, oocleptiphobia?

As a humble exponent alike of the causes of conservation and research, it affords us no satisfaction whatever to see an alleged champion of protectionism make absurd claims which he cannot support, or indulge in extravagant statements which, when challenged, will only weaken the cause he represents. Sensible protectionists, and there are such, *know* that this institution is a bulwark of conservation. They know that our affairs are conscientiously administered, and that we have the good of the bird-world no less than that of science at heart.

The challenge which this self-constituted champion of the protectionist faith has issued is, however, a more fundamental one than has yet appeared. In straining at the oological gnat, Rabbi Pycraft has swallowed a camel of licensed bird carnage before which the speculations of egg-collectors pale into insignificance. In doing this he has undermined the foundations of his own craft—pied his craft, as it were—without deceiving such of the public as are able to discriminate. Mr. Pycraft is an avian anatomist. The exercise of his profession requires the sacrifice of certain numbers of living birds, annually, in the name of Science. It is an honored profession, that of scientific bird-carver, and the Professor has served it with distinction. It is exceedingly important for us to know the intimate details of avian anatomy, just as it is important to compare the plumages of birds. To achieve these ends, it is necessary to secure large numbers of specimens. So great is the need of scientific collections of bird skins that very considerable tolls must, on occasion, be exacted, and some real hardship has, in isolated instances, been inflicted upon the bird world. We do not complain of this, although it is increasingly clear that such destruction in the name of science

ought to be entrusted only to competent hands, and that with every assurance of the greatest good to the greatest number of bird students.

But for anatomists and skin-men to "bawl out" the oologists as culprits and misdemeanants is a form of hypocrisy which cannot be tolerated. A bird, as every one knows, has only one life to give. When that life is taken, there is nothing left to perpetuate the species, nor to fulfil any of a dozen expectations of beauty, economic value, or instructive behavior, for which the world waits. But when only a set of eggs is taken, there remain the same certainties of perpetuation, reduplication, and increase. When the right to collect birds' eggs is exercised with sensible moderation, and such moderation we advocate, the economic status of bird life is virtually untouched. A female bird produces on the average, say, twenty-five eggs in a lifetime. Some species, as Petrels and Hummingbirds, would possibly fail of that number, while others, as Titmice or Quails or even Sparrows, might average twice as much. Under the mere stimulation of persecution, some individuals will produce twice or three times that number of eggs in a single season. The taking of a bird's nest, therefore, is scarcely comparable in kinetic importance to the plucking of a feather from a bird's tail, let alone to the *killing* of the bird itself.

We cheerfully concede to ornithologists, to explorers, to curators of responsible public museums, to avian anatomists, or even to speciation specialists, the right to secure bird specimens, when such are intended to serve, and actually do serve, the public good. But when representatives of institutions which cherish bird-skins by thousands and tens of thousands, and which *go right on collecting bird-skins* by thousands annually,—when the representatives of such institutions roll their eyes heavenward and thank their divinities that they are not found in the evil company of those who "rob birds' nests," it is time to call the bluff. I know men, men who bear honored names in ornithology, who admit that they have put up ten thousand, twelve thousand, fifteen thousand, bird-skins with their own hands. They preside over institutions which have thirty, forty, or it may be a hundred thousand bird-skins in custody. Reckoning half these numbers as females, and those as having passed half their egg-laying period at the time they were killed, we have in each skin taken an equivalent of six and one quarter eggs. That is, it would be equivalent *if the egg were not immediately replaceable*. But waiving that outstanding and redeeming fact, we will say that an oologist, to lay an equivalent personal tax upon the bird world, would have to prepare 62,500, 75,000, or 93,750 birds' eggs, respectively. No oologist living or dead ever touched such figures. An institutional destruction upon a comparable basis would have to proceed to a magnitude of 187,500, 250,000, or 625,000 eggs, respectively. There are no such collections in existence, and there probably never will be a collection, not even that of the rapacious M. C. O. ("the new threat to birds"), which will equal the last-named figure. Be it ever remembered that the "Blue Jays" of California destroy from one hundred million to four hundred million birds' eggs or young per annum, and that a comparable destruction, of Nature's own contriving, proceeds the world around.

What shall we say, then, of the intelligence or the integrity or the professional loyalty of men who expose the essential conditions of their own profession to such damaging comparisons as those above. Mr. Pycraft is reputed to be connected with the British Museum, and in such a position must, of course, approve of its policies. Let him state for our benefit what is the equivalent destruction, measured in terms of birds' eggs, of the bird skins which the honorable administration of the British Museum received into the institutional coffers during the year 1920. Yet Mr. Pycraft deplores the rise of an international institution whose annual toll will never exceed that represented by two or three thousand bird skins, a quantity which a British shire or an African hillside would never miss. Let the Curator of an American Museum (surely not *the* American Museum) who is so "glad to learn that Mr. Dawson has not succeeded in securing the cooperation of English ornithologists" (only about twenty of the *best* of them—quite sufficient, by the way, for the actual needs of exchange correspondence, although we expect to welcome a great many more as active sympathizers

and occasional contributors), let this enraptured gentleman tell us the equivalent destruction occasioned by his institution last year. A little louder, please! About sixty thousand? Yes, thank you; that will do.

PENGUINS

By. R. S. Sutherland, R. A. O. U.

Puysegur Point, Invercargill, New Zealand

Much has been written about penguins, but, as showing the truth of the old adage, "Far off fields are always green," the major portion of the information relates to the penguins of the far southern regions, and deals with birds that very few will see save as stuffed specimens in museums. At short intervals articles and books appear dealing minutely with the Emperor and Adelie Land Penguins, and it is rarely that the local species are even mentioned and, truth to tell, many are unaware of the fact that penguins of any sort are to be found in Australia, and that New Zealand is now recognized as the original home, as well as the center of dispersion of these quaint birds. Of the eighteen species of penguins,



CRESTED PENGUIN.

Coal Island, N. Z.

Photo by R. S. Sutherland, Esq.



YOUNG OF *C. pachyrhynchus*, 5 WEEKS OLD. TAKEN AT PRESERVATION INLET, N. Z.



Eudyptula minor, BLUE PENGUIN. SEALERS CREEK, N. Z. BY R. S. SUTHERLAND

which are classed in six genera, Australia has three species representative of two genera, and New Zealand has ten species of five genera. Apart from this, fossil remains of a giant penguin have also been unearthed in New Zealand, which apart from the great size, differs only in the greater relative length of the wing bones, from the present existing varieties. The fossils are of a bird which stood upwards of five feet in height, and in life, the bird was exceeded in size amongst the penguins only by the Seymour Island Giant Penguin, which stood slightly over six feet, and of which large quantities of fossil remains were obtained at that island in 1902.

Bearing in mind the greater relative length of wing to body, one must suppose that the nearest approach to the ancestral form is the Yellow-eyed Penguin, (*Megadyptes antipodium*). As the name implies, the most striking point about this penguin is the eye, which even to the pupil is entirely light yellow. The bird is about twenty-nine inches in length, (tip of bill to tip of tail), with a flipper of about seven inches. In color it is slaty grey above and white on the breast and including the throat and chin. Isolated grey feathers sometimes appear among the white feathers of the breast. This must be taken as a reversion to a primitive form, for it cannot be taken as a link connecting

them with the South American varieties, in which the breast is invariably spotted; for while the Yellow-eyed Penguin has a proportionally longer wing, the American species has a shorter wing, but a relatively longer leg. The crown of the head is canary yellow very lightly pencilled with black, and the crown is encircled by a golden band without black, about a quarter of an inch in width. This penguin, whose range does not extend to Australia, is found on Stewart Island (where it is generally referred to as the King Penguin), on the southern and eastern shores of New Zealand, and on the Auckland, Campbell, and Macquarrie Islands. Sometimes called the Grand Penguin and known to the Maoris as *Te Hoiho*, this is the only member of the whole family which pays much attention to nest-building, all the other species nesting either in caves, or burrows or on the bare ground. The Yellow-eyed does not congregate to form large rookeries during the breeding season, but a few, rarely more than a score, nest in a scattered company. Two very pale blue eggs, two and three quarters to three inches in length, are laid in the early part of September, in a large nest formed of short sticks and lined with fern fronds, and as far as I have been able to observe, the parents sit from thirty-two to thirty-six days. The young when hatched are clad in a very scanty covering of short down, and are completely helpless, unable to stand, and apparently blind. The young are fed, as in the cormorants and other similar birds, on regurgitated food which the chick obtains by thrusting the head inside the parent's mouth.

Apart from the Blue Penguin, the one most commonly met with is the Crested Penguin (*Catarrhactes chrysocome*).^{*} This bird is occasionally met with on the coast of Australia, and can be observed all round the New Zealand coast, though most frequently on the eastern side; and I have had a nesting cave of this species under close observation for two consecutive seasons at Coal Island, Preservation Inlet. The total length of the bird is about twenty-six inches, slightly less in the female, and the flipper is from five and a half to six inches. The only visible difference between the two sexes lies in the size. The upper surface of the body is dark slaty-blue, much darker, almost black on the throat and back of the head, and the lower surface is pure white. From the base of the bill, over each eye, is a tuft of clear yellow feathers extending somewhat less than an inch beyond the head, but it is only when the bird is perfectly dry, that the crest is very noticeable. Worthy of note here, is the fact that, whenever any ornamentation occurs amongst the penguins, it takes the form of yellow-coloured feathers in every instance. I might mention the yellow on the sides of the neck in both the Emperor and the King; the yellow crown in the Yellow-eyed and Royal Penguins; the yellow crest in the Crested and Thick-billed Penguins; and the yellow throat in the Galapagos Penguin, a Neotropical species.

In 1919, the first eggs were secured on July 12th, but in 1920 not until August 2nd. The former season was a very wet one, and newly laid eggs were found in great numbers in the mud of the cave, but the latter season was moderately dry, and only a few eggs were to be seen at the beginning of August. Taking the 1919 season, and allowing that the first eggs were laid on July 11th, then the time of hatching was five weeks, as the first young ones were noted in the act of emerging from the shell on August 14th.

Two eggs form the normal clutch; two instances were noticed of three, when one egg was very large and two unusually small, and were, in fact, the eggs from which the following extreme measurements were taken. The eggs are very pale blue with rough chalky incrustations, and measure from two and a half to three and a third inches in length, the average being two and three quarters.

The parent bird commences to sit when the first egg is laid, as in every nest one chick was much larger than the other. I estimate that three days elapse between the laying of the two eggs, and from this one is able to realize the very rapid growth which the youngsters make. The nesting cave has a small, fern and scrub-covered entrance, but is a very large place inside, as many as sixty or seventy pairs nesting in it. The floor is coated with thick greasy mud, and the walls and roof drip a horrid slimy ooze, and the air at the height of the

^{*}Editor's Note.—In a later communication Mr. Sutherland reports his decision that the bird under review is *C. pachyrhynchus*, not *C. chrysocome*.

breeding season is so thick that a lantern burns in it with a dull yellow flame, and the act of breathing, at least to a human, is a difficult one. Out of the sixty odd clutches only two sets were in formed nests, the remainder being all laid at random in the mud of the cave floor—in some cases they were all but buried—and this extreme wetness was probably the cause of the small number of young ones during the 1919 season.

The 1920 season was, however, about three weeks later than the previous one, and was, moreover, much drier, and in all the nests save about half a dozen, there were two chicks, and in one nest, a built one, I observed three. Two nests formed of about two handfuls of short, mud-encrusted twigs were noted during both seasons, and there is a probability that they were the nests of the same couples, as they were located in the same part of the cave on both occasions. Similar nesting material is very plentiful at the mouth of the cave, but the penguins do not make use of it.

As in the Yellow-eyed Penguin, the chick when hatched is absolutely helpless, and clad in a very scanty coat of down, dull sooty black on the upper surface and on the throat and chin, and dirty white on the breast and abdomen. Growth is extremely rapid at first, and the down grows with the bird, so that at six to eight weeks, a young one appears far larger than an adult. At hatching, the down is less than an inch on the back; and on the head, where it is shortest, it is about one-third of an inch. The feathers begin to appear during the seventh week, when they are developed in the following order: Firstly, the tail feathers; then in narrow bands from the tail up the back to the shoulders, followed by a return to the lower part of the abdomen, and a gradual rising to the breast. The neck then feathers very rapidly, but the head is slow; and the last body feathers to be taken on are those on the tips of the flippers,—and then, finally, the crest, which is at first a very pale yellow, or sometimes even white.

At about five weeks the chicks commence to wander about inside the cave, and at between twelve and fourteen weeks are fully grown, and ready to start in life on their own. It is interesting to observe the growing intelligence of these birds. To the best of my belief, the chicks when hatched are blind, as they take no notice whatever of an intruder. After a week or ten days, when approached, they whimper and squeal and endeavour to sit up; and at a month old they will snap at the hand if touched. But after six weeks, when approached, they slowly turn their white breast to the dark wall of the cave, and by remaining quiet and motionless try to avoid notice. The full-grown young ones refrain from entering the water until driven by the adults, or until compelled by hunger to search for food, but a chick of about four weeks taken as a specimen was washed in a tub to remove the cave mud, and even at that early age could swim and dive like an adult.

Although this cave was known some forty years ago, and a few notes were made about the inmates by the Austrian naturalist, Reischek, it was not known until the results of my observations were published (Proceedings of the Royal Australasian Ornithologists Union) that these birds are in the habit of nesting twice a year. In 1919, the first chicks were hatched on August 14th, and, allowing plenty of time for the arrival of the more tardy young, all the chicks should have been fully grown by the end of November. This, in fact, was the case, for on November 27th the cave was found to be deserted. Again, later, on December 8th, it was deserted, but when passing on the 20th the loud hurried screaming calls of penguins were heard, and upon investigating I saw about a score of old birds and a dozen or so sets of eggs. The chicks began to appear after January 21st, so I judge the eggs to have been laid about December 17th. It has been suggested that these nesting birds were early hatched, that is August young ones, but it is extremely doubtful if any penguin lays under twelve months, and, moreover, the birds were of adult appearance, with powerfully developed bills and bluish flesh-coloured feet. In the young of the first year the feet are a livid white.

Confused at times with the Crested Penguin is a slightly larger species, known correctly as the Thick-billed Penguin. This bird averages twenty-eight

inches in length with a wing of some six inches, and is dark blue black on the back, jet black on the head and throat, and with the crest somewhat shorter and closer set than in the typical crested variety. The beak, as the name implies, is also much stouter; and the feet, instead of being a dull bluish flesh colour, are reddish brown. This penguin does not reach Australia and is uncommon in New Zealand, although it breeds here. Its principal haunts are at Bounty and Antipodes Islands, where it forms large rookeries.

Worthy of notice, also, is that variety known as the Royal Penguin, (*Catarrhactes schlegeli*), a somewhat rare species which is sometimes mistaken for a young Yellow-eyed Penguin. It differs from that species in that the eye is brown and the yellow crown is only edged with clear yellow above the eyes, and not completely encircled. The back is brownish blue. The Royal Penguin is, properly speaking, an inhabitant of the Campbell and Macquarrie Islands, and is only observed as a straggler, and does not breed on the mainland.

The smallest members of the penguin family are comprised by the genus *Eudyptula* (meaning expert little diver). There are actually three species, two of which are quite common on the shores of Australia and Tasmania, although many naturalists will not admit more than two species for New Zealand, and one of these for Australia. The largest, and incidentally the commonest species met with is the Blue Penguin, (*E. minor*) which is sometimes, though erroneously, called the Rock Hopper. It is a plump, amusing little bird measuring eighteen inches in length with a wing of about four inches. The colour of the back varies between a bright pale blue and a dull blue black, and the lower surface is silvery white.

It is an amusing sight to watch a flock of these birds coming ashore at night to roost. They clamber up the slippery rocks, to be time after time washed back by the tide; but when eventually several do succeed in getting ashore, they squabble and buffet each other with right good will. One can almost imagine them saying, "There, take that! What did you want to push me back for?" as with plumage ruffled and flippers whirling, they rush together with angry cries.

The Little Blue or Fairy Penguin [*Eudyptula undina* Gould, Ed.], to some writers the doubtful species, is always smaller, being only fourteen or fifteen inches in length, though otherwise identical in appearance and habit. Its egg is also smaller, being invariably a quarter or a fifth of an inch less in length.

The last on the list is a variety said to be found only at Banks' Peninsula, and which is known as the White-flipped Penguin [*E. albosignata* Finsch, Ed.]. It is about the same size as the Blue Penguin, and differs only in having both the front and rear edges of the flippers edged widely with white, whereas the Blue Penguin has only the rear edge narrowly marked. It is comparatively a little known variety, but it is hardly conceivable that its habits and mode of life would differ at all from those of its near relatives. The three last mentioned penguins nest in burrows which they dig with the beak and feet, in which they lay two chalky white eggs, about the size of a hen's egg, the time of incubation being from twenty-six to twenty-eight days.

ARGUMENTUM AD HOMINEM ET AB HEN

It seems to puzzle many good people how the oologist can profess and manifest a "love for birds" and yet steel his heart to rob them of their eggs. It is a contradiction! A paradox! Well, perhaps it will be helpful to follow the analogy of the poultry raiser and the hen. Some people, no doubt, follow poultry-raising for pelf. They are out for the easiest scads and they would follow the lure of gold whether this meant the raising of hens or rutabagas, or whether it lay through the manufacture of horse-collars. But most people are in the poultry business because they are fond of hens. They are poultry "fanciers;" and all the marvelous development of breed and form and color has been due

to the patient effort of poultry "fans," poultry enthusiasts,—chicken-lovers, if you please. Yet the whole system has been based on robbery; upon a methodical spoliation of innocent female birds! To be sure, the world in common sense mood has connived at this practice, because it has always been interested, and always will be, in sharing the pelf. Yet a sentimentalist could find villainy enough in this system to keep reformers awake o' nights. Think of it! Trustful, affectionate fowls, ruthlessly despoiled, their tenderest instincts violated, nay, their very mother love exploited, in order that it may be more frequently betrayed! Tender infants torn from their mother's breast solely that they may be shut up in nunneries, or henneries, and similarly exploited. Out upon such a cruel system! A system which threatens alike the sancity of the (galline) home and the security of the hen race! A system which must inevitably react to the moral undoing of the monsters who perpetuate such outrages!

Fiddle! Yet it is not a whit more sensible to cry out against a system which seeks to exploit (*very modestly*) another section of the bird world, namely, the feral, and which would turn to the intellectual profit of the human race the carefully conserved trophies of such investigation and the evidences of conclusions reached. The absurdity of the argument advanced on behalf of the "rights of hens" is immediately manifest once the vein of common sense is struck. We shall eat eggs and "broilers" too till kingdom come. And we shall do so with no thought that we are cruel, ruthless or even inconsiderate. And here is the curious thing. The great "hen" race will not only increase in numbers and improve in quality, but those who serve it and "exploit" it, will find intense mental satisfaction through life-long association with their favorite breeds of birds. The enlightened self-interest of poultry owners will assure in increasing measure the physical (and psychical, if you like) wellbeing of domestic fowls. And in like manner, and with only one-thousandth part of the assumption of arbitrary control exercised by poultry owners, the collector of birds' eggs will satisfy scientific curiosity, at the same time that he joins in heartily with any sane program for the conservation of bird life and the promotion of altruistic interests in birds.

We are not advocating the *indiscriminate* collection of birds' eggs, any more than we are the "indiscriminate" robbing of hens' nests. But if the human race requires hens' eggs for food and birds' eggs for study, we reckon that the human race will continue to help itself in common sense fashion.

THE OOLOGICAL OUTLOOK

An Editorial Review of Conditions and a Forecast for 1921.

History no less than prophecy is a form of divination; for whereas events are objective, they are by the same token incomprehensible. Only through the insights of the historian do we obtain glimpses of reality; and the historian, like the prophet, is one to whom events reveal their inner meaning. It is not intention but necessity which compels the editor to combine the functions of historian and prophet; and he would not do so were it not for the conviction that these functions are really one. For, truth to tell, the preoccupations of a year which has seen the launching of "The Birds of California" have left little enough time for the fashioning or noting of oological events, albeit the *Zeitgeist* of Oology has been an almost palpable presence. The historian, then, will make an early exit, and the soothsayer shall have the floor.

In sooth, it has been a great year, an almost overwhelming year. The response which the collecting world made to our proposal of organizing a world fellowship of oologists, was so instant and so generous that we have been well nigh overwhelmed with appreciation as well as with gifts and offers more substantial. There is no doubt of it in the world! *Oologists will cooperate!* And they will establish a fellowship as dear to them as their dearest hobby has always been. The outlines of that structure of fellowship are now clearly marked, and all that

remains is to give the organization a rich body of mutual understanding and a content of cooperation. But we speak of the "M. M. C. O." elsewhere, and will not dwell upon the particulars here.

The previous review dwelt chiefly upon three topics: The dawn of Internationalism; the adjustment to the victories of Conservatism; and the new sense of public responsibility. We cannot do better at the outset than to note the changes, both in fact and opinion, under these three heads.

The cause of internationalism had a bad fright last year, and it lived for months under a crushing weight of apprehension. We cannot pretend to have discovered a shifting of sympathy within the oological entente; but if the movement escaped us, the tension was, nevertheless, manifest. So, while this is not the proper arena for political discussion, we would stultify our calling, alike of scribe and prophet, if we failed to note how much we have at stake in the pending discussion of a disarmament program. Many of us who were humiliated and heart-broken over the failure of the United States to join the League of Nations, are reviving under the ministrations of a new hope. Our President is calling the nations to conference, and his voice is that of a matin bell. Perhaps the world's salvation dawns, a greater boon than could have been secured by hastily constructed machinery, or before a conviction of our dire need had struck home. We *must* give over suspicion and plottings and isolations. Madness and extinction lie that way. This little fellowship of oologists already alert to the advantages of international cooperation, may exert its modicum of influence in shaping a world's peace, an entente cordiale of nations which shall be—whatever it will be, "*Der Tag*" in a new and glorious sense? That day shall come! The day when men see eye to eye; when they shall no longer mark each other's stature or the color of skins, but shall read each other's souls and strike hands in fellowship. We can do our part to bring about such a day by thinking in world terms and by magnifying the opportunities of fellowship already afforded us.

And why should we even think of denying ourselves this privilege? If the birds of a township are interesting, by so much more are the birds of a foreign state! If we delight in counting up the avian tale of a province, is there not ten times the thrill in telling off the score of a continent? Those who have caught the broad vision, if only in the realm of oology, cannot go back again to live the narrow life of the home village or the home province. The world henceforth is our home, and the world's bird-men, be they ruddy, brown or tawny, are our brothers.

Regarding the adjustment of oological claims to those of conservation, we regret to say that open conflict has broken out. Secure in the confidence of victories recently achieved, certain conservationists, over zealous, have turned upon their brethren, and have given voice to angry and unjust charges. We shall neither get angry in turn, nor consent to bear these jealous imputations. Those who criticise without specific citations are manifestly doing so for effect, not to intimidate the collectors, but to encourage their lagging fellows, and to get a response when the hat goes around. We refuse to believe that the wiser, more responsible leaders of the conservation movement will sanction these snarling criticisms, or take stock in the exaggerations of any alarmist. No cause, however righteous, can afford to imperil its verdict by over-statement, nor to indulge in diatribe where sober questions of fact are at issue. The serious-minded collector has nothing to fear in laying his case fully before the public. As a personal testimony, I may say that so far as my knowledge goes not a single visitor of the thousands who have seen the Museum of Comparative Oology has ever gone away unconvinced of the value and propriety of the scientific collection of birds' eggs. The criticisms which have been leveled at us collectors have been born of ignorance, or of prejudice established long before acquaintanceship was formed, or else they have been due to excesses committed by some of the unethicized among our own number, and whose actions we too deplore.

And this brings the reviewer to consider again the responsibility of the oological craft before the bar of public judgment. If we lay claim, as we do, to a portion of the common heritage, viz., birds' eggs, it is just that we be called

to give public account of our stewardship. We should prefer, of course, to be judged by experts, but that is not the way of democracies, and this is assuredly the day of democracy. No cause, in the last analysis, can endure which cannot abide the exercise of the public suffrage. If that suffrage is ignorant or uninstructed, it is our own fault. The way of salvation for any cause lies through the exercise of an *intelligent* suffrage. If the collectors of birds' eggs persist in a policy of secrecy, in a policy of evasion or equivocation, if they amass huge collections which they neither care for nor understand, if they treat birds' eggs as commodities for barter and exchange, or if they regard only the rarity of the



NEST AND EGGS OF VERMILION FLYCATCHER. NOTE DELICACY OF PRESERVATION
ALTHOUGH TRANSPORTED 600 MILES. FROM SERIES, CASE X, DRAWER 7, M. C. O.

objects of their pursuit, and redouble their efforts to get in on species likely to become extinct,—if they do any or all of these things, then be assured that an aroused public indignation will be kindled against them, and the privileges of the collectors will be curtailed, those of the just with those of the unjust. No doubt in that case, also, the fault will be partly chargeable to intolerance, but that will be small comfort when the mischief is done. No, the only way to secure justice and to vindicate legitimate claims, is to play the game—any game—in the open, to play square, and to *demand* the public approval.

It is precisely for this reason that the Museum of Comparative Oology has set itself the task of mediatorship. Some of the “egg hogs” are bored, and some of the dealers are resentful, but the conscientious collectors and the conscientious administrators of the public enactments alike applaud our efforts. It is perfectly possible to bring about a sincere understanding between science and conservation, the public being judge.

If we turn to new matters, we shall find that the practice of oology has

made valuable gains both in breadth of appeal and in dignity during the past year. Serious structural and systematic inquiries are being undertaken, as by van Pelt Lechner and Schalow. With due apology, but with a new respect and under the impulse of a new demand of public interest, various ornithological and popular reviews have touched upon the nesting realm, or reviewed the outstanding features of oological theory. Intensive efforts have been more and more centered upon problems of oological inquiry, and upon their psychological associations. No more striking or instructive instance can be cited than that of Edgar Chance, Esquire, who patiently followed the fortunes of a Cuckoo (*Cuculus canorus canorus*) through three seasons' nesting, and who last year secured twenty-one eggs from one bird. No doubt a certain school of faddists will affect to be horrified by an investigation which demanded the oological output of an entire meadow season by season (although if a crofter had cut his hay from the same meadow the value of the fact as news would have been scouted at the village store); yet the insight afforded by these studies is thrilling and valuable in the extreme. That the outcome of such observations, systematically and ardently pursued, may revolutionize many of our cherished conceptions of bird-life, goes without saying. Howard's "Territory in Bird Life", while not primarily the work of an oologist, so clearly illustrates the field of inquiry to which oologists may address themselves, that its publication cannot but prove a wholesome incentive to all students of the breeding cycle.

With the quickening of interest in field studies has come an increasing invasion of fields still unknown or but little explored. As a stimulating example of this oological occupation of the world, we may cite the case of Africa. The M. C. O. has correspondents and Members in Cape Colony, Natal, the Transvaal, and the old Orange Free State, with two applications on the way from Rhodesia. Our Major Pitman has gone to British East Africa, where he will represent us on the Honorary Board of Foreign Advisers. Charles F. Swynnerton, Esq., has just reported in from Tanganyika Territory (once "German East Africa"); while Hon. Charles F. Belcher is settled at Zomba, the capital of Nyasaland. And if we add that Judge Belcher's fine collection of eggs, secured at Entebbe in Uganda,—exactly under the Equator—has just arrived at the M. C. O., our readers will understand what a pride our fellowship takes in seeing the oological sun rise upon the Dawning Continent. It is the day of internationalism; and not until every zoogeographical unit of the earth's surface is linked up in a cooperative system, shall we realize the fullest advantages which are to accrue from comparative studies.

It takes neither prophet nor son of prophet to observe that the oological ambition is kindling. How far this ambition is to spend itself in acquisition, in private possession or hoarding, remains to be determined. There are hopeful signs not a few, that ambition is to take the form of achievement, of ancient difficulties conquered, of problems solved, of laborious investigations successfully carried out. Progress, moreover, is to be qualitative rather than quantitative. A single species thoroughly studied out and adequately represented in the collection is sometimes better than a miscellaneous assortment of a hundred times the size. Here as elsewhere distinction and value are almost synonymous. Better a single masterpiece than a gallery of daubs! That series of Cuckoos' eggs, now, forty-six from a single bird, would Mr. Chance swap it, think you, for a "general collection" of a thousand eggs? There are a thousand general collections, but there is only one such series of Cuckoos' eggs.

Although there is, just now, a slight recrudescence of general collecting, it will give way, in all probability, before the superior claims of specialization. The psychology of this is precisely the psychology of internationalism. A general collection of a hundred species of birds' eggs gives a boy a certain standing, or notoriety, in the village; but it does not interest the more experienced collector at the county seat. The general collection of five hundred species, maintained in town, may only make the connoisseur yawn; and it may have in it no single item which would justify publication in a provincial organ. But a collection of a

quarter that size which stresses one single point, as variable size within the set, albinism, incipient spotting, or even the range of variation of a single species, may command and deserve the attention of the collecting world. Its value as a specialty, moreover, consists in the attentive appreciation of the world's connoisseurs. If that is a stake worth playing for, if that is an interest worth serving, then the applause of the village may have to be forfeited in order to secure it. The real values, the permanent values, the world values, in oological collecting, as in every other line of effort, lie in the doing of one or two or many things better than any one else anywhere has ever done them before. Granted a world audience and the intelligent appreciation of connoisseurs, it is worth while to do these things, even though a man render himself thereby perfectly unintelligible to his fellow villagers. In specialization and in the fashion of its rewards lies the difference between provincialism and cosmopolitanism, or more widely, between semi-civilization and enlightenment.

NESTING BOXES AS A HELP FOR A COLLECTOR OF BIRDS EGGS

By J. K. Jensen, Santa Fe, Mexico.

About 25 years ago, when still a young and green but enthusiastic collector of birds' eggs, my collection, although small, represented a good many species. It was, however, almost entirely devoid of eggs of birds nesting in cavities or holes in trees, even those of very common species. An old collector friend of mine, to whom I mentioned this, suggested that I use nesting boxes and thus, by what I still believe is taking an unfair advantage of the birds, collecting sets deposited in these boxes. I acted upon his advice, and have been able to collect a good many sets of eggs, which I hardly would have been able to take in any other way.

As early as 1894, I made my first experiments in this line. My home was then in Denmark, so, naturally, the first species collected were eggs of European birds. The Danish farmers had for years been wont to supply nesting boxes for the European Starling, this bird being strictly protected and very beneficial to farming. I soon discovered that by making boxes of different sizes and shapes, it was possible to attract almost all kinds of cavity-nesting birds, and I have there seen the following birds taking advantage of the nesting boxes offered: Wryneck, Swift, Gray, and Spotted Flycatchers, Starling, Jackdaw, European Tree Sparrow, Great, and Blue, and Swamp Titmice. Of course about one half of the boxes were taken by the House Sparrow.

In 1904, I settled in Boston, Mass., or rather, Westwood, Mass., ten miles south of Boston. Here I found from my own experience, that the Screech Owl, Flicker, Downy Woodpecker, Tree Swallow, Crested Flycatcher, Bluebird, Chickadee, White-breasted Nuthatch and House Wren are willing to accept nesting boxes; and I believe that the only record of the Red-breasted Nuthatch nesting in a box was made in Dover, Massachusetts, about three miles from my home (by Mr. Edward Howe Forbush, State Ornithologist).

I spent the seasons of 1916-1917 at Wahpeton, North Dakota. There I had about the same species of birds to deal with as in Massachusetts. The Western House Wren was exceptionally common. In May, 1917, I set up ten Wren boxes; and eight were occupied by Wrens. The Purple Martin was nesting very abundantly in the cornices of the buildings in town, places where I could not collect the eggs. I placed some boxes on telephone poles, from which I eventually took as many sets as I needed. The Martins would use every suitable box if placed on a pole, but would not go near a like box if it was nailed on the side of a building.

The American Sparrow Hawk, another bird new to my collection, was fairly common. I made two boxes, one of which I placed on a telephone pole near my home. A pair of Sparrow Hawks inspected the box and decided to use it, but some laborers went to work repairing the road close to the box, and this

annoyed the birds, so I was afraid they might leave. I then took down the box and moved it to a more quiet place. The birds watched the proceedings, and one of the pair entered the box less than one minute after it was fastened in the new position. The other box I nailed to a tree on a small island in the Red River. In due time I collected a fresh five set from each box. Later in the season I took from one of the boxes two sets of the Purple Martin, the two nests being in the same compartment, but in different corners of the box; and both were collected at the same time.

In August, 1917, I moved to Santa Fe, New Mexico. I met here a fellow collector, who after 13 years of bird-nesting had not succeeded in collecting even one set of a bird as common as the Gray Titmouse. In the Spring of 1918, I made a few boxes and placed these in the pinyon pines three to four feet from the ground. Within a month I had four sets of the Gray Titmouse in my collection, and supplied my friend with two, all taken from these nesting boxes. I also set up boxes for the Desert Sparrow Hawk with success. The Mountain Bluebird, also, is a very abundant tenant in my boxes. This spring (1920) I took a set of six fresh eggs of the Chestnut-backed Bluebird from a box in the Santa Fe Canyon, at an altitude of 8,500 feet above sea level. It should be easy to have the Red-shafted Flicker follow the example of the Northern Flicker.

Here is one instance where a box brought me a new set. Last spring while examining some Bluebird boxes placed in the pinyons, I found in one of these boxes a nest with four fresh eggs of the Ash-throated Flycatcher. I left the eggs a few days, hoping to get a larger set, but when I came back to collect I found the female incubating the four eggs. As there are no trees with holes or cavities suitable for nesting places for miles around, and as this species of Flycatcher is so rare here that the incubating female is the only bird of the kind I have seen in three years, I fully believe, that the placing of this particular box is responsible for a new set in my collection.

If one is placing two boxes of the same size and shape in the same locality, it is possible to attract different species of birds by placing the boxes in different positions. A Tree Swallow and a Violet-green Swallow prefer boxes placed in plain sight on the trunk of a tree or a pole, whereas the Gray Titmouse and Chickadee are very willing to use a box well hidden among the branches and leaves of a tree or bush.

I fear it would extend this article too far to go into details as to the sizes and shapes in which to make the boxes, and as to the different positions in which to place them to get the best results—moreover this might vary somewhat in different parts of the country—still I shall mention a few.

A box eight inches square and ten or twelve inches deep with an entrance hole near the top three and a half or four inches in diameter will do very well for a Sparrow Hawk. A box five inches square and about twelve inches deep with an opening two and a half or three inches in diameter and near the top will accommodate a Flicker. As neither Flickers nor Sparrow Hawks use any nesting-material, it is advisable to cover the bottom of the boxes with coarse sawdust to the depth of an inch or so. A box four inches square and eight inches deep with entrance hole an inch and a half in diameter will accommodate our different species of Bluebirds; also the Ash-throated Flycatcher. The same size box with a smaller opening, say about one inch in diameter, will please a Gray Titmouse, a Chickadee, or any of its kindred. Swallows and Martins prefer a lower box with entrance hole near the bottom. The Crested Flycatcher usually nests in a broken-off hollow limb; therefore, I make the boxes for this bird in imitation of a hollow limb. Such a box should be, say, two feet long, four inches square, open at one end, and fastened along a horizontal sawed-off limb.

I usually leave the cover-top of the boxes fastened very lightly—three or four small nails—so it can easily be lifted off and put back in place again, thus giving a convenient opportunity to examine the contents of the box. Very often I have destroyed a good set of eggs in a cavity by cutting into it too early or too late. This mistake can be entirely eliminated by using boxes and by examining them every two or three weeks.

THE SEASON OF 1917

By the Director



AN AUDUBONNET (YOUNG WESTERN REDTAIL)

THERE was nothing for it, apparently, but to play mumblepeg until the second alarm should sound. War had been declared *at last* on the 11th of April; but according to the supercilious standards of that early day we were hastily classed as ineligible, heads of families (seven and six, respectively), a boy with a bum ear, and two youngsters of fourteen; so we stole off, grumbling, into the desert while civilization burned. Lord! If the desert had been big enough to house the whole human kind, with plenty of 'sea-room' for each, there would have been no fighting. For envies and suspicion and lust for power are born of fetid cities, of elbows worn raw by human contacts, of social strata six layers deep, where some strutting war-lord on top mistakes human heads for paving bricks. If only, if only the desert *had* been big enough!

All great souls love the desert, and many a little soul comes to greatness when he finds himself alone with a low horizon line. Without passing upon the status of the five souls who set out on the 24th of April bound for Tuscon, Arizona, I violate no confidence in saying that every one of them, from the "Chief" to the "Chiny cook" would like to go again. Hardships there were, cruel suns and unending thorns, sandy stretches which tested the endurance of a moderately powered motor, dust storms and waterless camps, and between whiles an atmosphere of *dolce far niente* against which the spirit had to struggle. But if there was an inferno of heat at midday, there was an incomparable freshness in the early mornings. The thorn-thrust was offset by the beauty and the sincerity of starkness utterly undisguised. A welcome sense of escape from ancient repressions forever softened and gilded the desert road. Yet the compelling vividness of a new now was forever belied by a conviction that it had always been thus and would ever be just so. The desert, you see, is subjective, a kindred state of mind.

From the unctuous prosperity of the "orange belt," as typified by San Bernardino and Redlands, we shot out, eastbound, through a blinding sand-storm at Whitewater into the lee of the San Jacinto mountains, and so into the pregnant desolation of the Colorado desert. At Indian wells, on the morning of the 27th of April, we saw a migrating (?) Black Swift (*Cypseloides niger borealis*), a rare sight at the lower levels. At another desert oasis, Fish Springs, we paused to record a local horizon of fifty species before pressing on. The only notable was, perhaps, the Baird Sandpiper (*Pisobia bairdi*), which was shot. But those of the party who were not acquainted with the Desert Song Sparrow (*Melospiza melodia fallax*) had a chance to marvel that the familiar brown elf of their childhood should here have become bleached out almost to whiteness.

From Niland to Yuma we traversed the coarse gravelly wash along the southern flanks of the Chocolate Mountains. The mountains themselves are of an incredible desolation, mere earth stuff. The writer once, on a winter day, spent two hours threading one of their lower canyons, and the only living thing he saw in that time was a fly. On another winter day, mild and beautiful, comparable in this respect to the best that summer could offer elsewhere, a half day's

excursion along the ridges disclosed one Rock Wren (*Salpinctes obsoletus*) and a pair of Red-tailed Hawks (*Buteo borealis calurus*)—nothing more. Yet the beds proper of the lower washes support a variety of vegetation, palo verde, Dahlia, Parkinsonia, creosote, mesquite, ocatilla, and cholla cactus. The beautiful palo verde, or green tree (*Cercidium torreyanum*), so called because of the chlorophyll distributed throughout its bark, and by virtue of which it needs no leaves, was in splendid flower, great heaps of yellow gold. In such places we found Verdins (*Auriparus flaviceps flaviceps*), Plumbeous Gnatcatchers (*Polioptila plumbea*), Cactus Wrens (*Heleodytes brunneicapillus couesi*), Le Conte Thrashers (*Toxostoma lecontei lecontei*), Phainopeplas (*Phainopepla nitens*), and Desert Quails (*Lophortyx gambeli*) at home. And these, save for the substitution of Palmer's Thrasher (*T. curvirostre palmeri*) for the more local Le Conte, we were to find in about the same proportions throughout our desert pilgrimage. In any enumeration of desert species it would not be fair to leave out the Ash-throated Flycatcher (*Myiarchus cinerascens cinerascens*) as ubiquitous in the deserts of Arizona as he is in the woodlands of southern and middle California. These doughty birds appear to subsist, and to breed, miles from any known supply of water. Where the saguaro cactus is at hand, the problem of a nesting site is easily solved but in default of this one, is often at a loss to surmise where the birds find plant-stems large enough to furnish the hollow which they require.

That birds of prey are hard put to it for nesting sites is evidenced by the accompanying cut, which is that of a nest of the Western Redtail (*Buteo borealis calurus*) located in a clump of *Fouqueria splendens*. Scarcely a hundred yards away from this, doubtless in last year's Redtail's nest, was a lusty brood of Western Horned Owls (*Bubo virginianus pallescens*). Concealment there was none, but a pretense of modesty would have been more seemly, for the nest contained, in addition to the usual supply of animated feather cushions, three in this instance, four headless kangaroo rats and a brace of Mourning Doves (*Zenaidura macroura marginella*).

Of the town of Yuma on the Colorado River, which marks the entrance into Arizona, one can only wonder Why? A railroad crossing an important river may be deemed a sufficient answer, but the brave souls who find it such ought at least to be liberally pensioned. The lower Gila River, too, seemed a region of desolation, only a little milder. The first Sahuaros, the "giant" cactuses, whose quaint majesties cannot be overstated, proved barren. The solitary Elf Owl (*Micropallas whitneyi*), discovered after much vain seeking in an old burrow of the Gilded Flicker (*Colaptes chrysoides mearnsi*), was guiltless of procreative intent.

After a disgusted half-morning, we resumed the road, a decent bit of highway, up-stream. Some freak of fancy, a "hunch" perhaps, led me to stop and investigate an old weatherbeaten nest of the Cactus Wren hard by the roadside. A splendid set, 1-7, was the result, and not the least of its charms lay in the half-sized runt which was number seven. I have been looking in old wrens' nests ever since, but never found another one occupied.

With the waxing of the sun came lunch time, a seductive "draw" variously timbered, and a plunge in the turbid Gila. After lunch, Verdins, Gilded Flickers and Gila Woodpeckers (*Centurus uropygialis*) yielded to our oological persuasion. Clay brought in Abert Towhee (*Pipilo aberti*), n-3, and a good-sized rattler which had surprised him at close quarters while squatted on the ground writing notes. Clay claims that the beast looked over his shoulder, and was about to play the stunt worked by Hamlet's uncle, but decided instead to forfeit four feet of perfectly useless continuity and twelve immense rattles, (with good evidence of others missing). The youngest member of the party, Robert Canterbury, brought in what he alleged to be the egg of a Cactus Wren. I had him show me the nest, and it checked up all right; but the egg was several thousand speckles shy of the usual amount. Now Cactus Wrens' eggs* are usually so heavily covered with sayal brown specks as to appear an almost uniform pinkish cinnamon, yet this egg, of indubitable authenticity, was as lightly and as sharply

*See colored frontispiece of the "Journal of the M. C. O.," Vol. I, Nos. 3 and 4, for illustration of both normal and abnormal types of Cactus Wrens' eggs.

spotted as the egg of a Meadowlark (*Sturnella magna*). I mention this particularly because this lad discovered for us four other sets of this same exceptional type, and that in three widely separated localities. And yet the four remaining members of the party, who together found a hundred sets or so of the Cactus Wren in the course of the season, came upon nothing out of the ordinary. I submit the case—and I can vouch for every egg—as being something of possible interest to the psychologist.

The morning of May 2nd found our party of oological pilgrims at a wayside camp in the broad belt of mesquite forest which lines the Gila River in its middle lower course. One hesitates to apply the word "forest" to a sylvan mantle only twenty feet in thickness. The word ought more properly to be reserved for the designation of the magnificent stand near Tucson, the Mesquite Forest par excellence, which we shall enter in a few days. Such as it is, however, "timber" or scrub, the verdure of the Gila is *sui generis*, a gray-green ribbon which



THE RECORD FOR HIGH NESTING OF THE CACTUS WREN. ROBERT CANTERBURY IS TAKING ONE OF HIS FREAK SETS FROM A MESQUITE TREE NEAR INDIAN OASIS

follows a devious river in its windings, and which harbors a world of interesting birds. Here we first met "Paloma," the White-winged Dove (*Melopelia asiatica trudeaui*) and the shy Lucy Warbler (*Vermivora luciae*). The Dwarf Cowbird (*Molothrus ater obscurus*) was there to keep tab on nesting operations. Cactus Woodpeckers (*Dryobates scalaris cactophilus*) "pinked", and Arizona Least Vireos (*Vireo belli arizonae*) chattered, and Gila Woodpeckers grumbled, while Desert Quails chuckled and shouted and scurried.

But our narrative would be as long as the desert road if we stopped to appraise every variety of cover or every novelty of bird song which we encountered between Yuma and Phoenix, or between Phoenix and Tucson. The outstanding impression of the entire journey, to a novice, was the abundance and variety of thrashers. Indeed, the whole region deserves to be called Thrasheria. At a wayside station below Chandler, where the vegetation was exceptionally sparse, we saw four species of the *Mimidae*, viz., the Bendire Thrasher (*Toxostoma bendirei*), the Le Conte Thrasher (*T. lecontei*), the Crissal Thrasher (*T. crissale*), and the Western Mockingbird (*Mimus polyglottos leucopterus*). Only the entire

lack of the cholla cactus from this station could account for the absence of the elsewhere abundant Palmer's Thrashers (*T. curvirostre palmeri*). We found nests of three of the species, the Crissal, the Bendire, and the Mocker, while at a nearby point I remember seeing a Crissal, a Le Conte, and a Mockingbird hopping about within arm's length of each other in a single bush. If these birds had been silent, the occasion would have been less noteworthy; but when to the pleasure of new species was added the medley of a group of America's most gifted songsters, the hour became memorable.

The real objective of our expedition was the famous Mesquite Forest. This lies, or did lie, some twelve miles south of Tucson. Fed by secret springs of the Santa Cruz River, which has been alternately flowing and trickling underground ever since it left the Mexican border, some sixty miles to southward, the humble mesquite (*Prosopis juliflora*) rises here to the dignity of a real tree, and this forest, once matchless for size and extent, contained trees sixty and seventy feet in height and up to three feet in diameter. A ruthless policy of deforestation, which was culminating at the time of our visit, had reduced the heavier timber to about four-fifths of its former abundance and the destruction was going on, according to the Indian agent in charge, at the rate of 2500 cords per annum. At that rate the forest could not have held out above two years longer. Without doubt the intensity of the nesting operations which we found in progress during our stay was due, chiefly, to the congestion caused by the rapid decrease of available nesting area. As an oological opportunity, the occasion was unique; but as an example of governmental waste, the situation was appalling.

Conditions in the Mesquite Forest have been so often and so well done for American readers, that I shall do no more than to review some of the more prominent species, and summarize.

Without doubt the presiding genius of the enchanted forest is the Vermilion Flycatcher (*Pyrocephalus rubinus mexicanus*). Although at times painfully conscious of his resplendent coloring of scarlet-red, flame-scarlet and black, the male of this species makes the frankest display of his person, and sows the forest with his earnest notes. No spectacle could be more appealing than the ecstasy song flight of the male Vermilion. In him the pride and joy of life burst cover, and the little tyrant, breasting the sun, now flutters with exaggerated wing-motion, thinking only of display and not at all of progress, and now pours forth his soul in a stirring song, *tully tully tully tully zzingh*. The last note is a singularly vibrant sound, sufficient in itself to entitle the performer to a decoration. There is not the smallest question, either, that the demure mate, seated on her nest, enjoys the aerial gallantry, even if she would quite as lief the gaudy hero would not come close enough to give away their secret. The eggs of *Pyroceph-*



FEMALE VERMILION FLYCATCHER
(*Pyrocephalus rubinus*) BEHIND NEST

alus, with their abrupt markings of black, are among the most delectable of all Tyrannid ovals; and the set figured in our frontispiece is perhaps as richly marked as any yet discovered.

At the opposite pole for modesty stands the Lucy Warbler (*Vermivora luciae*), whose little-known ways had chiefly lured us to these woods. A little gray wraith who takes precious good care to be seen as little as possible, one would scarcely suspect its presence in the tangle of mesquite trees or the thickets of All-Thorns (*Zizyphus*) but for the tell-tale shreds of grass or of bark which stick out from behind some bark scale or other frayed woodland pocket. The song, something like that of the Yellow Warbler (*Dendrocia aestiva*), is loud and characteristic enough, but the song and the singer are matters difficult to connect. Yet when the oological attention is once directed to the ways of the Lucy Warbler, and the gnarled trunks of the mesquite trees begin to yield up their secrets, it is amazing how common the bird may be. Our party found some fifty nests of this species, and sixty of the Vermilion Flycatcher—*found*, I say, not took. We left the Gila Woodpeckers to take their share of the crop, and the evidence goes to show, especially in the case of the Lucy Warblers' eggs, that the Woodpeckers got more than a fair share. Cortical concealment being exactly in their line, they have become passed masters in the arts of acquisition.

The third commonest species of these woods was, perhaps, the Arizona Least Vireo. These confiding little creatures swung their May baskets to the lower branches of mesquite saplings, and awaited the attentions of snooping Dwarf Cowbirds, who were not wanting. The male Vireos insist upon singing in close proximity to the nest, so that discovery is easy. The nesting life of this little midget is one incessant struggle with these dastardly Cowbirds. One irate vireo I saw who seized a cowbird three times her size and dragged her off the nest by main force; but it was too late, or would have been if I had not removed the bastard incubus with an egg scoop.

Rarer forms haunted the forest and added their mysteries to the glamor of the whole. Arizona Pyrrhuloxias (*Pyrrhuloxia sinuata sinuata*) lilted and whistled along with their scarcely to be distinguished cousins, the Arizona Car-



CAMP IN THE MESQUITE FOREST

dinals (*Cardinalis cardinalis superbus*). Mexican Goshawks (*Asturina plagiata*) still clung to their ancient haunts with trees falling on every side of them. Audubon Caracaras (*Polyborus cheriway*) appeared twice along the central channel of the Santa Cruz. And once the boys saw a wandering Wood Ibis (*Mycteria americana*). Altogether 95 species of birds were seen in the forest and upon its outskirts between May 8th and May 26th. And again in June, when all migrants had passed, we listed 68 species of breeding birds between June the 2nd and the 14th.

If it is remembered that Assistant Clay devoted more than half his time to the preparation of bird skins, and that the "Chief" indulged in photography (mildly), and in note-books (all too sparingly); and, lastly, if it is understood that the "Chiny cook" (Giles E. Dawson, aged 14) devoted his time chiefly to the swatting of flies, the burning of prunes, the over-salting of rice, and other domestic duties, the following examples of oological book-keeping may not be uninteresting: May 8-25 inclusive; New locations found 436; number of occupied nests examined 324; sets taken 113. In June, records of only four days were kept, June 2, 4, 5, and 7. On the 2nd of June on the sahuaro desert adjacent to the forest, 80 occupied nests belonging to 20 species were examined, and 14 sets taken. In the four days inclusive 248 occupied nests were examined, of which 21 per cent were taken. In the 22 days for which systematic records were kept 572 nests of 41 species were examined, and 165 sets taken.

The writer is explicit about this, the most intensive egg-collecting (save of sea fowl) which he ever engaged in, in order that the protectionistic gunners elsewhere referred to in these pages may be provided with a target of high visibility. Remember, if you care to, that the material taken has become the property of the scientific world. Remember that we were spending a thousand dollars on the trip, and that we were fourteen days drive from home. Now compare the total "take" with the published figures of *bird skins* taken by single collectors or expeditions in comparable stretches of time, and duly reported in the columns of "The Ibis," "The Auk," "The Emu," etc. Remember, finally, that a take of 165 sets of eggs in 22 days represents the average destruction caused by three pairs of blue jays in the same period of time. "When you are ready, Gridley, you may fire."

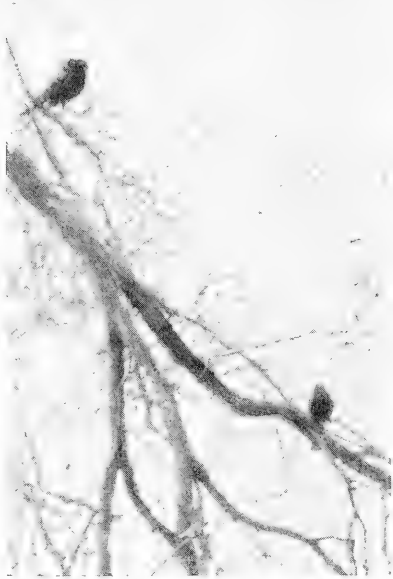
On the 26th of May our entire party undertook a five day trip to the Patagonia Mountains, a small semi-arid range which lies just inside the southern border of Arizona. A momentary dash into Mexico, at Nogales, with a rush of hostile customs officers while we were turning around on *their* side of the street, lent spice to our adventure; and we had need of spice, because the Patagonias were disappointing in their bird life. One saw, however, Arizona Jays, Woodhouse Jays and Long-crested Jays, all in a half-day climb; and one heard the exalted strains of Scott Orioles, forever memorable as utterance of the authentic wilderness. Of nests we took only Arizona Jay, Long-crested Jay, Scott Oriole, Palmer Thrasher, Lead-colored Bush-Tit, and Mexican Cooper Hawk (*Accipiter cooperi mexicanus*). But a run of fifty or sixty miles which yields fifteen or twenty additions to one's life horizon could be voted a success, in spite of meager oological returns.

Of the June residence at the Mesquite Forest, the nesting of the Western Chat was easily the outstanding feature. Chats simply seethed through the *Zizyphus* thickets, and the opportunity for speculation which their nests afforded was as to the number and variety of Cowbirds' eggs which a given nest might contain. The Dwarf Cowbird (*M. ater obscurus*) appeared to specialize on this species, now that Vireo nesting was practically over. The Bronzed Cowbird (*Tangavius aeneus aeneus*), however, devoted herself sedulously to the nesting of the Arizona Hooded Oriole. We found Orioles' nests which contained eggs of both species of Cowbirds; and in one instance a Bronzed Cowbird's egg had been deposited in a last year's nest which hung just above this year's structure. Either there was a "hen on" at the time of the parasite's visit, or else she had adjudged the lower nest already full enough. One pair—if it could be called a pair—of Bronzed Cowbirds attached themselves to our camp—perhaps for no

better reason than that I was indulgent enough to take their pictures now and again.

The ardors of mid-June began to remind us of the cool breezes which temper the Santa Barbara shore. Bird-nesting, or at least Chat-nesting was still at its height, but a temperature of 110 degrees in the shade is no fun for a bird-nester. "Let's go home, boys!" Agreed! We elected to go by the southern or Ajo route, guaranteed to be real desert, without respite, reprieve, or abatement. We were not disappointed. Some fifty miles west of Tuscon at a wayside waterhole, well fenced, we found the range cattle standing about, listless, or sinking down to die unprotesting. They had had no rain in this section since December. At Indian Oasis we saw Rufous-winged Sparrows and 22 other species of birds. How they managed, the Lord only knows. At Ajo, a copper mining camp, we found—a soda fountain!

As we turned at Ajo to drive northward and follow the line of the Southern Pacific Railway tracks, we learned that the coast of Southern California, including our home town, was being held in the grip of a heat wave the like of which had never been known. It could not last, of course, but we knew what we had to endure before reaching the coast. The mercury climbed steadily, 111°, 114°, 118°, 125° (at Mohawk). By dint of filling our helmets with cracked ice, ob-



BRONZED COWBIRDS (*Tangavius aeneus aeneus*). NOTE DISTENDED RUFF OF MALE (upper figure).



A BIT OF OLD ARIZONA

tainable at the railway sidings, we ground it through, four days of burning, birdless agony. When at last we heaved in sight of San Diego, and knew that the hot wave was broken, the old chariot, the "Jolly Ellen," which had borne us so faithfully, was creaking in every joint. Rivers of ice-water and the dust of travel had blended on our various anatomies until we looked like veritable dust-devils. And yet—and yet, we'd go through it all again at the drop of a hat. Oh, the desert is stern and the desert is vast and the desert *is* cruel, but the children of the desert, even the adopted children, love hardship—and freedom.

List of Birds observed in and immediately adjacent to the great Mesquite Forest near Tucson, Arizona, May 7-26, 1917. Species whose presence was again recorded in June are given in bold-faced type. Those whose eggs were actually taken are marked with an asterisk.

May 7, evening

- Lark Bunting (*Calamospiza melanocorys*)
- ***Arizona Cardinal** (*Cardinalis cardinalis superbus*)
- ***Texas Nighthawk** (*Chordeiles acutipennis texensis*)
- ***Baird's Wren** (*Thryomanes bewicki bairdi*)
- ***Vermilion Flycatcher** (*Pyrocephalus rubinus*)
- ***Western Mourning Dove** (*Zenaidura macroura marginella*)
- ***White-winged Dove** (*Melopelia asiatica trudeaui*)
- ***Lucy Warbler** (*Vermivora luciae*)
- ***Arizona Hooded Oriole** (*Icterus cuculatus nelsoni*)
- American Raven** (*Corvus corax sinuatus*)

May 8 ***Western Mockingbird** (*Mimus polyglottos leucopterus*)

- ***Western Chat** (*Icterus virens longicauda*)
- ***Dwarf Cowbird** (*Molothrus ater obscurus*)
- ***Cactus Woodpecker** (*Dryobates bairdi cactophilus*)
- ***Gilded Flicker** (*Colaptes chrysoides mearnsi*)
- ***Western Kingbird** (*Tyrannus verticalis*)
- ***Desert Quail** (*Lophortyx gambeli*)
- ***Bullock Oriole** (*Icterus bullocki*)
- ***Gila Woodpecker** (*Centurus uropygialis*)
- ***Arizona Least Vireo** (*Vireo belli arizonae*)
- Pine Siskin** (*Spinus pinus*)
- Sierra Hermit Thrush (*Hylocichla guttata sequoiensis*)
- ***Abert Towhee** (*Pipilo aberti*)
- ***Roadrunner** (*Geococcyx californianus*)
- Turkey Vulture** (*Calhantes aura septentrionalis*)
- ***Verdin** (*Auriparus flaviceps flaviceps*)
- ***Rough-winged Swallow** (*Stelgidopteryx serripennis*)
- ***House Finch** (*Carpodacus mexicanus frontalis*)
- Pileolated Warbler (*Wilsonia pusilla pileolata*)
- ***Crissal Thrasher** (*Toxostoma crissale*)
- Grinnell's Water-Thrush (*Seiurus noveboracensis notabilis*)
- ***Western Redtail** (*Buteo borealis calurus*)
- ***Canyon Towhee** (*Pipilo fuscus mesoleucus*)
- Lesser Yellowlegs (*Totanus flavipes*)
- Northern Violet-green Swallow (*Tachycineta thalassina lepida*)
- Audubon Caracara** (*Polyborus cheriway*)
- Killdeer** (*Oxyechus vociferus*)
- Traill Flycatcher** (*Empidonax trailli*)
- ***Mexican Cooper Hawk** (*Accipiter cooperi mexicanus*)
- Western Wood Pewee** (*Contopus richardsoni*)
- ***Mexican Goshawk** (*Asturina plagiata*)
- ***Mexican Ground Dove** (*Chaemepelia passerina pallescens*)
- Western Martin** (*Progne subis hesperia*)

May 9 Say's Phoebe (*Sayornis saya*)

- Black-headed Grosbeak** (*Zamelodia melanocephala*)

- Cooper Tanager** (*Piranga cooperi*)
Treganza Great Blue Heron (*Ardea herodias treganzai*)
Western Yellowthroat (*Geothlypis trichas occidentalis*)
Tolmie Warbler (*Oporornis tolmiei*)
Black Phoebe (*Sayornis nigricans*)
***White-rumped Shrike** (*Lanius ludovicianus excubitorides*)
***Arizona Pyrrhuloxia** (*Pyrrhuloxia sinuata sinuata*)
Gambel Sparrow (*Zonotrichia leucophrys gambeli*)
***Palmer Thrasher** (*Toxostoma curvirostre palmeri*)
Cliff Swallow (*Petrochelidon lunifrons lunifrons*)
Cassin Kingbird (*Tyrannus vociferans*)
***Sonoran Redwing** (*Agelaius phoeniceus sonoriensis*)
Canyon Wren (*Catherpes mexicanus conspersus*)
Lazuli Bunting (*Passerina amoena*)
Sonora Yellow Warbler (*Dendroica aestiva sonora*)
Belted Kingfisher (*Ceryle alcyon alcyon*)
Avocet (*Recurvirostra americana*)
Anthony Green Heron (*Butorides virescens anthonyi*)
Cinnamon Teal (*Querquedula cyanoptera*)
Black-crowned Night Heron (*Nycticorax nycticorax naevius*)
Olive-backed Thrush (*Hylocichla ustulata swainsoni*)
Barn Swallow (*Hirundo erythrogastra*)
White-throated Swift (*Aeronautes melanoleucus*)
Wilson Phalarope (*Steganopus tricolor*)
Western Sandpiper (*Ereunetes mauri*)
Spotted Sandpiper (*Actitis macularia*)
***Black-chinned Hummer** (*Archilochus alexandri*)
***Cactus Wren** (*Heleodytes brunneicapillus couesi*)
Townsend Warbler (*Dendroica townsendi*)
Greater Yellowlegs (*Totanus melanoleucus*)
Desert Sparrow (*Amphispiza bilineata deserticola*)
Western Lark Sparrow (*Chondestes grammacus strigatus*)
Vaux Swift (*Chaetura vauxi*)
May 10 **Western Horned Owl** (*Bubo virginianus pallescens*)
Green-tailed Towhee (*Oreospiza chlorura*)
Sharp-shinned Hawk (*Accipiter velox*)
***Swainson Hawk** (*Buteo swainsoni*)
11th ***Elf Owl** (*Micropallas whitneyi*)
Arizona Crested Flycatcher (*Myiarchus magister magister*)
Band-tailed Pigeon (*Columba fasciata*)
Zone-tailed Hawk (*Buteo abbreviatus*)
***Phainopepla** (*Phainopepla nitens*)
12th **Cassin (?) Vireo** (*Lanivireo solitarius cassinii*)
13th **Cedar Waxwing** (*Bombycilla cedrorum*)
14th ***Sahuaro Screech Owl** (*Otus asio gilmani*)
Harris Hawk (*Parabuteo harrisi*)
17th **Western Tanager** (*Piranga ludoviciana*)
23rd ***Bronzed Cowbird** (*Tangavivus aeneus aeneus*)
26th **Barn Owl** (*Aluco pratincola*)
Burrowing Owl (*Speotyto cunicularia hypogaea*)

Additional species noted in June (2-14) with date of first entry

June 2 **Arizona Blue Grosbeak** (*Guiraca caerulea lazula*)
***Sparrow Hawk** (*Falco sparverius*)
***Bendire Thrasher** (*Toxostoma bendirei*)
White-necked Raven (*Corvus cryptoleucus*)
Plumbeous Gnatcatcher (*Poliophtila plumbea*)
5th **California Cuckoo** (*Coccyzus americanus occidentalis*)
7th **Prairie Falcon** (*Falco mexicanus*)
11th **Wood Ibis** (*Mycteria americana*)

List of birds in the Patagonia Mountains above the 4500 foot level, May 27 to June 1, 1917, arranged in the order of the A. O. U. Check-List. Names of species not seen in the Mesquite Forest in bold-faced type.

Mearns Quail (*Cyrtonyx montezumae mearnsi*)
Band-tailed Pigeon (*Columbia fasciata fasciata*)
Western Mourning Dove (*Zenaidura macroura marginella*)
White-winged Dove (*Melopelia asiatica trudeaui*)
Turkey Vulture (*Cathartes aura septentrionalis*)
Mexican Cooper Hawk (*Accipiter cooperi mexicanus*)
Western Redtail (*Buteo borealis calurus*)
Golden Eagle (*Aquila chrysaetos*)
Arizona Woodpecker (*Dryobates arizonae*)
Ant-eating Woodpecker (*Melanerpes formicivorus formicivorus*)
Red-shafted Flicker (*Colaptes cafer collaris*)
Poor-will (*Phalaenoptilus nuttalli nuttalli*)
White-throated Swift (*Aeronautes melanoleucus*)
Cassin's Kingbird (*Tyrannus vociferans*)
Ash-throated Flycatchers (*Myiarchus cinerascens cinerascens*)
Olivaceous Flycatcher (*Myiarchus lawrencei olivaceus*)
Coues Flycatcher (*Myiochanes pertinax palladiventris*)
Western Wood Pewee (*Myiochanes richardsoni*)
Buff-breasted Flycatcher (*Empidonax fulvifrons pygmaeus*)
Vermilion Flycatcher (*Pyrocephalus rubinus*)
Long-crested Jay (*Cyanocitta stelleri diademata*)
Woodhouse's Jay (*Aphelocoma woodhousei*)
Arizona Jay (*Aphelocoma sieberi arizonae*)
American Raven (*Corvus corax sinuatus*)
Dwarf Cowbird (*Molothrus ater obscurus*)
Bronzed Cowbird (*Tangavius aeneus aeneus*)
Scott's Oriole (*Icterus parisorum*)
House Finch (*Carpodacus mexicanus frontalis*)
Mexican Crossbill (*Loxia curvirostra stricklandi*)
Pine Siskin (*Spinus pinus*)
Scott's Sparrow (*Aimophila ruficeps scotti*)
Mountain Spotted Towhee (*Pipilo maculatus montanus*)
Canyon Towhee (*Pipilo fuscus mesoleucus*)
Black-headed Grosbeak (*Zamelodia melanocephala*)
Western Tanager (*Piranga ludoviciana*)
Hepatic Tanager (*Piranga hepatica*)
Northern Violet-green Swallow (*Tachycineta thalassina lepida*)
Phainopepla (*Phainopepla nitens*)
Plumbeous Vireo (*Lanivireo solitarius plumbeus*)
Stephen's Vireo (*Vireo huttoni stephensi*)
Black-throated Gray Warbler (*Dendroica nigrescens*)
Pileolated Warbler (*Wilsonia pusilla pileolata*)
Painted Redstart (*Setophaga picta*)
Palmer's Thrasher (*Toxostoma curvirostre palmeri*)
Rock Wren (*Salpinctes obsoletus*)
Canyon Wren (*Catherpes mexicanus conspersus*)
Baird's Wren (*Thryomanes bewicki bairdi*)
Rocky Mountain Nuthatch (*Sitta carolinensis nelsoni*)
Bridled Titmouse (*Baeolophus wollweberi*)
Lead-colored Bush-Tit (*Psaltriparus plumbeus*)
Plumbeous Gnatcatcher (*Polioptila plumbea*)



EGGS OF AMERICAN OYSTERCATCHER,
CONTRIBUTED BY B. R. BALES, M. D.
(Drawer lining of Virginia sand)

OYSTERCATCHERS: RUNNING SERIES,
SIX SPECIES SHOWING
(Cotton "wool" lining)

USE OF BEACH SAND AS A DRAWER LINING

Cotton batting, or cotton "wool," has been, ever since the discredited days of sawdust, the accepted material for use as a background for birds' eggs. It has, of course, much to recommend it: softness, uniformity, indentability, freedom from insect pests, and, at its best, a virginal whiteness which suggests a fitting association for our oological treasures. But the druggist and the draper, no less than the jeweller and the silversmith, have long since discovered that white is a trying color for a foil; that it dissolves and discounts delicate shades, and that it tires the eyes. An extended examination of white-lined drawers induces eye-strain and a semi-nausea, which, unconsciously, discredits the interest of the subject in hand. In striving to escape this handicap, the M. C. O. has employed two expedients, tow and beach sand. The latter in practice especially commends itself, and we believe it to be the ideal foil for the larger eggs, notably for neutral-tinted eggs, like those of the *Limicolae* and the *Lariformes*. Except where the actual local material can be utilized, as with the coarse sands of Monterey, where Least Terns and Snowy Plovers nest, we use Santa Barbara beach sand or Virginia sand. The advantages of this material are worth enumerating.

In the first place, its neutral tint, almost typical neutral gray in the case of sand from Cobb's Island, is in itself restful and pleasing to the eye. While its use harmonizes the appearance of a series of neutral-colored eggs, it allows the eye to discriminate the minutest differences of shading in those eggs. In the case of Sandpipers, Gulls, and related forms, there is an obvious fitness of association which serves to heighten the interest. The finer beach sands can be sifted over a drawer floor rapidly and with great uniformity to any desired depth. We use for this purpose either an ordinary wire-mesh tea-strainer, or, for the larger drawers, a kitchen flour-sifter. By gentle pressure the eggs can be firmly settled into this medium, when prepared, so that when complete, this drawer can be oscillated (but not too rudely) without a trace of movement in the eggs.

Of course a little sand will work into the blow-hole of the egg, but if the sand is ocean-washed, clean, and thoroughly dried, this can do no harm. The

only disadvantage offered by this arrangement is in regard to alterations. Because of the delicate character of the surface presented, any considerable alteration necessitates rearrangement of the whole drawer. But this is much easier than cutting out and fitting a new cotton lining. There might be disadvantages in a very damp climate, through the attraction of the salt-impregnated sand for moisture; and in any case this material should be used only in glass-covered drawers. We have just examined a beach-group drawer set up eight years ago, and found not a trace of moisture or discoloration present. We are strong for the use of neutral gray beach sand.

SUCCESS

Dr. David Starr Jordan's definition of Success is, "Doing what you would like to do and getting paid for it." And the success thus ably pictured is not only personal but social. We are all succeeding when we enjoy the service of men who can put their hearts into their work. Such men deserve the highest reward, because their service is ipso facto of the highest quality. Society cannot afford to pay the misfit; and the man who is not doing what he wants to do, what he would rather see done than anything else in the world, is more or less of a misfit. The public service, especially, demands and deserves loyalty and enthusiasm as well as mere expenditure of time and a passable ability.

Yet the Government of the United States, that is all of us, consents to disregard the fundamental laws of psychology and of ethics. We ordain that the man who enters the public employ and who insists upon doing the thing he



SERIES OF BLACK-HEADED GULL (*Larus ridibundus*), CONTRIBUTED BY J. G. GORDON, ESQ.
(The drawer lining is of Santa Barbara beach sand)

would like to do and that he is best fitted to do, shall thereby forfeit a right to the essential conditions of social equality, and that he shall surrender hope of a living wage. The scandal of underpaid postal service has been a menace to our civil life, and the scandal of underpaid service in the Department of Agriculture has weakened the very foundations of our national prosperity. In particular, the Bureau of Biological Survey, whose conception of service was fraught from the very outset with the highest promise and which for decades has made good by every enlightened standard of efficiency, this bureau has been, latterly, scanted in appropriation and pinched at the waist-line until only a heroic few are left of its once splendid personnel. When a plumber can command twelve dollars a day, and a house carpenter eight or nine, how much service, think you, can Uncle Sam expect for \$1800 a year from men who are supposed to know ornithology, mammalogy, entomology, botany, taxidermy, accounting, and management? How much from men who, if they are really to succeed in their profession, ought to have a college education, to have command of three or four modern languages and two ancient, to be able to write magazine articles and scientific treatises, and, in general, to make first hand contributions to the sum of human knowledge? The answer is, None. And so we find among the ranks of artisans and small farmers and grocers' clerks and real estate agents and brokers—among teachers even—ex-employees of the Bureau of Biological Survey, men whose natural gifts would have entitled them to become brilliant exponents of biological science; indefatigable collectors, ready to endure any hardship; experts and technicians of almost limitless capacity and serviceability. The writer knows a truck driver who was once a distinguished collector for the Biological Survey, and who could put up a mammal skin in five minutes with no implement but a pair of scissors. He knows also a bank clerk whose supple fingers once trained in the Biological Survey service, and guided by an active intelligence, would serve a commonwealth with distinction; but now the potential Nelson shuffles greenbacks and punches a "Burrows," because, forsooth, the Government of the United States of America will not pay a biologist a wage upon which he can marry and raise children.

We learn from the last annual report of the Secretary of Agriculture (Dec. 10, 1920) that eight of the sixteen departmental divisions "are without directing heads because the vacancies could not be filled at the available salaries." We learn, further, that during the fiscal year 1920, 528 of the scientific and technical employees left the service of the Department for economic reasons.

If the present stage of democratic [note we are using a small d] administration of public affairs is a success, we shall have to re-state President Jordan's definition: Governmental success evidently consists in failing to do what ought to be done, and in making us pay through the nose for it.

SANE LEADERSHIP

In the face of the present wave of senseless criticism of a certain department of biological science, it is pleasant to recall that some of the official heads of governmental administration are not likely to be stamped by sentimental outcries. Our leading officials are men who themselves received training in the school of the woods and in the great open; and they have served their apprenticeship as collectors. Of the Chief of the Bureau of Biological Survey we read in a recent governmental publication that he spent fourteen years in Mexico and Guatemala. "The result of his work was an accumulation of the most extensive collections of birds and mammals, and the most complete records of its wild life ever made in Mexico." Certainly; and because of this and similar services, E. W. Nelson was justly chosen as the administrative head of one of the strongest institutions of scientific service in the world. Possibly Dr. Nelson did not collect birds' eggs, but the, say, ten thousand birds he killed would have laid, say, one hundred thousand eggs, more by a good deal than any institution in the

world had claimed at last accounts. The "Blue Jays" (*Aphelocoma californica*) of San Luis Obispo County destroyed last year some ten million birds' eggs. Fourteen years of governmental operations in Mexico exact a toll about equal at the outside to the natural breakage of a single California township for one season. But of course the R. S. P. B. will feel sure that the world's supply of bird life is about to be throttled in embryo.

Of Robert W. Williams, the present solicitor of the U. S. Department of Agriculture, we read in a charmingly written article by John E. Sanford, that he is charged with the enforcement of laws which vitally affect the welfare of every person in the United States. It was Williams who fought the Reed gang of Missouri, and who won from the Supreme Court of the United States the final vindication of the Migratory Bird Act, a decision in which the Court declared the cause of bird protection to be "a natural interest of very nearly the first magnitude." Of course! because Mr. Williams, who is "a red-blooded, whole-hearted, healthy man" is himself passionately fond of the birds, and because he spends his leisure hours at Tallahassee in the company of his bird friends. His development as an amateur and scientific ornithologist was a perfectly normal one, because "as a schoolboy the collection of birds' eggs and study of birds was more than a fad with him, and he continued his study as a pastime after his graduation 1898." And this governmental characterization is a fair epitome of the early history of nearly every ornithologist of any prominence in America. The battalions of the *ultras* are not recruited from the ranks of the soberly trained naturalists, but rather from the fringes of the me-toos, who repeat the catch words of their leaders without the slightest suspicion that they are uttering nonsense. Oology has little to fear from men of the Nelson and Williams type.

[Since we penned the foregoing, Mr. Williams has become a Member of the M. C. O.]



NEST OF SWAINSON'S HAWK (*Buteo swainsoni*) IN GIANT CACTUS (*Cereus giganteus*)

NEW OFFICERS AND TRUSTEES

At the Sixth Annual Meeting of the Board of Trustees of the Museum of Comparative Oology, held January 18th, 1921, three new trustees were unanimously elected. In Mr. James Marwick (late of Marwick and Mitchell, New York City), who was elected to the presidency, the Museum has found a man of affairs and of social address who, though not acquainted with the technical side of oology, nevertheless realizes its value in science, and the usefulness of the Museum in the civic life of Santa Barbara. His task is not an easy one, but we feel sure that the mantle of our late lamented President Ripley will become him. Mrs. Anne Stow-Fitian, a sister-in-law of our first president, is not only a recognized social leader in this metropolis of busy leisure, but she has served the civic interests of the community with distinction, and is at the present time president of the Visiting Nurses Association. Mr. Ralph Hoffmann, author of "A Guide to the Birds of New England and Eastern New York" and various other scientific works, needs no introduction to ornithologists. Santa Barbara counts herself fortunate in having been chosen as the scene of Mr. Hoffmann's future labors; and it was but natural that the Museum should have won his early allegiance.

Miss Caroline Hazard, one-time president of Wellesley College, and closely identified with our work since the death of her brother, Rowland G. Hazard, graciously accepted the vice-presidency, at a subsequent meeting of the Board; and she has played a close second to President Marwick's able lead. Hon. Myron T. Herrick, recently reappointed Ambassador to France, and Dr. Nicholas Murray Butler, President of Columbia University, both winter visitors to Santa Barbara, have accepted the office of Honorary Vice-President. Under such distinguished sponsorship, we feel sure of at least a patient hearing for the cause of oology; and the friends of the institution may feel confident that our ambitious aims will be steadfastly realized.

MUSEUM ACTIVITIES

The field activities of the Museum staff for the current season were narrowed down to two weeks spent in the Mammoth Lakes section of southern Mono County. The director and two assistants were accompanied by Henry Ward Carriger, of Oakland, and the presence of this veteran bird-nester of the Sierras assured a full bag, in spite of the fact that an unseasonable storm broke the season square in two.

On account of late snows, the heaviest in five years, the main party found itself too early for "Leucos"; but Assistant William Oberlin Dawson, with two volunteers, remained three weeks at the higher levels and brought in a gratifying assortment of the coveted eggs.

A museum sometimes has its own reasons for modesty, but we are now prepared to admit that two successful seasons in the high Sierras (after years of failure) have yielded us twelve of the fourteen sets of the Sierra Nevada Rosy Finch (*Leucosticte tephrocotis dawsoni*) known to science.

A full account of the nesting habits of this, perhaps the most inaccessible of American breeding birds, will be prepared for the initial number of *The Comparative Oologist*.

Another leading feature of *The Comparative Oologist* will be an account of the nesting habits of the Yellow Rail (*Coturnicops noveboracensis*) by the well-known specialist, Rev. P. B. Peabody. Dr. Peabody secured a handsome set, n-8, of this species for the M. C. O. this season.

Owing to the generosity of Judge Charles F. Belcher, now Attorney-general of the Nyasaland Protectorate, the M. C. O. has been able to secure upon very liberal terms his valuable collection of African birds' eggs. This collection comprises well over a thousand sets, and represents five years of exceptional opportunity at Entebbe in Uganda (just under the Equator), with side trips to the Mombasa region, Natal, and Cape Colony. The collection, which has now been unpacked in Santa Barbara, proves to be especially rich in eggs of the *Nectariniidae* and the *Ploceidae*, and contains, besides, type sets of six or seven species. We hope to present later a brief account of outstanding features of interest to northern amateurs.

Our representative in China, Rev. Harry R. Caldwell, reports an exceptionally interesting season. Heavy rains with attendant floods, which kept the natives indoors, released this ardent missionary-oologist, and he hustled about in the pouring rain "making (oological) hay while the sun shone." Two paragraphs in his always interesting correspondence, demand presentation:

"I have had great difficulty in getting *Hirundo guttularis*, Eastern House-Swallow, and could not do so until I incidentally alluded to the fact that even our Chinese Christians still often cling to certain superstitions of the heathen, saying, 'Take, for instance, the matter of the swallow building in your home. You still look upon this as an omen of good luck and happiness. I cannot even secure a set of swallow eggs for a museum in America.' You should have seen what happened. Shortly after the close of the service Christian people brought to me everything from one egg to full sets almost ready to hatch. Well, I succeeded in getting you some eggs, but it was the only way I could do it."

"The Violet Whistling Thrush eggs (*Miophonus coeruleus*) are the first I have been able to take since the spring of 1900. I found one set that year, but have been outwitted right through the years until this year, when I succeeded in taking two sets. The Great Spotted Forktail has always evaded me until a few weeks ago. I will have two sets of these for you if all goes well,

and the creek does not get too high. There is more truth than poetry in this, for I had one perfectly beautiful nest and set carried away a few days ago by freshet. The nest I now have spotted was not to exceed four inches above the rushing torrent of a canyon stream a few days ago when I found the birds working like beavers building. There is a lull in the storm now with receding waters, so I will likely pick the fruit about tomorrow or next day."

We find ourselves obliged, very much against our inclination, to preserve a sphinx-like silence regarding a good deal of the choice material which has come in to us by way of member fees and donations. We are going to spill over, though, about some recent accessions from India, Burma, and Ceylon, which we judge to be "safe" territory. It is not for the editor to say which exceeds in value, but the gifts of Messrs. Baker, Field, Wait, Hopwood, and Marlow are close rivals for interest. From Mr. Stuart Baker came two handsome series, fifteen sets of the Brown Bush-Warbler, *Tribura leteiventris*, and 26 sets of Austen's brown Hill-Warbler, *Suya khasiana khasiana*. The last-named shows a high variation, from the familiar robin type, pale pinkish buff, heavily ringed with mikado brown, to the rare "blue" type (an egg, of course, is never blue, but only Niagara green, however pale).

From Mr. F. Field came nineteen sets and ten nests, most carefully preserved. This offering is a gem, whether viewed nest-wise or egg-wise,—or rather, it is a casket of gems. Indeed, for once we have delayed putting the eggs with their respective nests, because, for example, the sensational contrasts between the two sets of *Prinia inornata*, one a pale buff and the other a strong green as to background, would be discounted if hidden away in their dainty baskets. The eggs of the Asiatic Sunbird (*Arachnechthra asiatica*) would be lost in their casket of cobwebs, for they are of the same color (however, we mean to put them there in time.) Besides that, the rich olive of *Hydrophasianus chirurgus* would be left alone, for these eggs have no rush nesting place.

From Mr. Hopwood came eggs of Gould's Broadbill, *Scriolopus lunatus*, Abbott's Babbler, *Turdinus abbotti*, *Sarcogrammus atrinuchalis*, and others "too numerous to mention." Mr. Hopwood, too, knows how to collect nests as they ought to be collected, and his offering of a Scarlet-backed Flower-pecker's cradle shows how man and bird may conspire to achieve distinction.

Mr. T. Marlow is represented by a series, 25 sets and 5 singles, of the Burmese *Prinia blanfordi* which is a revelation of beauty to us unprivileged Americans. As the good bishop (what was his name—) said of the strawberry, "Doubtless God could have made a better berry—but doubtless he never did." Doubtless the Almighty *could* arrange for the production of more bewitching ovals, but it is very doubtful if he ever did.

Mr. W. E. Wait, of Ceylon, himself one of the newest and most valued accessions to the M. M. C. O., sends sixty-four sets from his hitherto unrepresented isle. Mr. Wait modestly admits that *Aegialitis alexandrina* of the resident tropical race is a species not often taken, and we do not doubt his word; but our untutored interest darts from the single egg of the India Koel *Eudynamis honorata*, a fascinating complex of color, chiefly red, to the plain ovals of *Gallus lafayetti*, the Ceylon Jungle Fowl. The dingy white eggs of the Green-billed Malkoha (*Rhopodytes viridirostris*), a large Cuckoo, remind us of our own Roadrunner, *Geococcyx californicus*. We will own, though, that we are most entranced with the romance—and mystery—of another Cuckoo's egg, that of the Pied-crested Cuckoo, *Coccyzus jacobinus*. This egg as the result of ages of evolution (whether "conscious" or unconscious, who knows?) has achieved an exact similitude to those of its invariable host, a Babbler (*Crateropus striatus*). No one can detect any difference between the rich clear green of the host egg and the robber egg; nor is there any distinction in size; but the initiated know that the cuckoo's product has a thicker shell.

We are deeply indebted to these gentlemen and to a score beside whose names, no less worthy, have not been given on this list. We hope to furnish before the year is out an exact statement of contributions, for circulation *among members only*.

MEMBER CONTRIBUTIONS

Our very unusual proposal to accept nest-and-egg material in lieu of cash in settlement of member fees has met a very sympathetic response, and fully justified our fond prediction that the egg collectors of the world would be glad to contribute to a common fund. Some thirty-five members have availed themselves of this privilege, and the only reason why this number has not been greatly increased is because notices of dues have been held up pending the appearance of this Journal. Some members have felt a hesitancy in sending eggs as a substitute for cash, as though it were in some way derogatory to their dignity. To such we hasten to say that in the majority of instances we would really prefer material contributions. While a certain amount of cash is necessary to run any publication, and the M. C. O. Journal is no exception, we find that an enduring representation in the M. C. O. cabinets affords the greatest satisfaction, alike to the donor and to his fellow beneficiaries.

Visiting members find the keenest enjoyment in inspecting the gifts of their brethren, whether from Santa Barbara or New Zealand; and the *esprit du corps* which this method is developing is one of the most gratifying features of our institutional work. We regret that it does not appear

wise just at present to publish a full list, either of contributions or of contributors. Some of our members have been subjected to a senseless criticism on account of their generosity, and others fear it. The upshot will probably be that we shall have to conduct a certain amount of our business behind closed doors—"For Members only."

The quality of the member contributions has been, almost without exception, above criticism. Our members take a pride in giving of their best to the common storehouse. Very much to our delight, several members who do not collect nests for themselves have developed a discriminating taste in the selection of nests for export. Confessing that they lack room in their own cabinets, they pass on the good things which are too good to waste. This is as it should be. We are "bears" for nests with all the fluff and stringers thereto appertaining,—nests *in situ*, or at least so generously translated that they appear to be still in situ when they repose in our drawers. One word of kindly caution. Although we have been sorely tempted (and have sometimes fallen) this past year, we do not care for empty nests. Give us the eggs *with* the nest, or else turn the whole exhibit over to some one who needs it more than we do. A nest whose eggs have been bestowed elsewhere is like the proverbial apple pie without cheese; or, to follow the jingle out, like a squeeze without its kisses.

"THE BIRDS OF CALIFORNIA"

As we go to press it is not yet possible to make final announcement regarding the publication of "The Birds of California." It is understood, however, that the underwriter's agents are preparing revised estimates with a view to bringing the work out as a whole, instead of in parts; and that it will appear at the earliest possible date consistent with good workmanship. The initial parts, of 64 pages each, of this long-promised work appeared in March. The welcome accorded these trial issues was most enthusiastic and appreciative, and seems to fully warrant the contemplated outlay of a hundred and fifty thousand dollars. It became clear to the publishers, however, that a return to the single delivery plan would be most satisfactory all around. In all probability, then, the illustrative equipment of "The Birds of California" will be fully assembled before the work resumes press; and the press work will be condensed into a six-months' period instead of the two-years-and-a-half which the serial method would have required.

SINGLES

Friends have called the editorial attention to a regrettable and inexcusable error appearing on page 31 of the last issue of the Journal, where we refer to "their Majesties Albert and Mary King and Queen of the Belgians." "It should be Elizabeth." Why, of course! We knew that. But what a bore! And it was not exactly our democratic aloofness which was at fault either. The associational wires got crossed; that's all. Our humblest apologies are hereby tendered to Her Majesty Queen *Elizabeth* of Belgium.

Nothing pleases the management of the M. C. O. better than to welcome the young folks of the city schools year by year, and to instruct them in bird-lore. The annual pilgrimage of the Santa Barbara High School is an established function—virtually a part of the curriculum. Yesterday we entertained fifty of these high school students in two sections; and later in the afternoon received a delegation of twenty-five embryo teachers from the normal school. To see the alert intelligence and the pleased interest of these young folks is an incentive as well as a reward to the ornithological heart. We can only wonder why this thing hasn't been done before—and often.

In the death of the Honorable John Lewis Childs, of Floral Park, New York, on the 5th of March, western ornithology loses a devoted patron, and oology one of its most prominent figures. While Mr. Childs had little interest in technical ornithology, and little time to spend afieid away from his business, which was that of a wholesale seedsman and florist, he nevertheless built up a fine ornithological library, and a collection of birds' eggs which, from the standpoint of completeness of representation of the "A. O. U." species, probably ranked second in America. For many years Mr. Childs had made a practice of spending a month or two each winter in and about Los Angeles, and his presence was always eagerly welcomed in ornithological circles. He made two pleasant visits to the Museum of Comparative Oology, one in 1920, and had hinted, rather broadly, of a deeper interest. However, we shall miss the man more than we shall ever miss his eggs, for he was a genial soul, simple and child-like in his affections, appreciative, and a bit lonesome withal, like a man who would fain have lingered in a pleasant garden with a friend, rather than wrestle with the absorbing business tasks to which he had devoted such capable energies.

Our departed friend will pardon a little moralizing, we know. It is not in criticism, but in wistfulness and in sorrow that we remind ourselves that here was another man who had been getting ready to enjoy life after the fashion of his secret dreams, to relax, to listen to the birds, and to revel in his accumulated treasures. But when his stake was made, when the stern disci-

pline of business life had been relaxed and his affairs composed, then, instead of the rest, the leisure, the reveling in birds' eggs, of which he was passionately fond, came—the end. Oh, it was no fault of his. And we, perhaps, should do no better, nor even otherwise; but is it not a pity and an infinite reproach—not to the individual, but to the race—that human life cannot be so composed that its energies shall be released and put into fullest play along the lines of its innermost choices? We do not judge the individual. He did splendidly well, as a husband, as a father, as a citizen, as a business man. Perhaps he did do the very things he preferred. But also what a splendid oologist he might have made!

We have not heard what is to become of the Childs Collections. There is a rumor that they are involved with a comparatively new institution of small standing. We do not know, and we will not profess our institutional curiosity. We may, however, with propriety venture two or three suggestions. The egg collections left by Mr. Childs are important enough so that they ought by all means to be kept together. They should be placed in competent hands, as a public trust, rather than buried in another private collection. It would be especially fitting if Mr. Childs' love of California and his interest in western ornithology should be memorialized by a gift of library and egg collections to some western institution, or placed in the custody of the Cooper Ornithological Club, say, in Los Angeles.

Mr. Kenneth L. Skinner is to be congratulated upon the promising appearance of his new magazine "The Oologists' Record." Vol. 1, No. 1, issued March 1, 1921, contains 24 pages, besides cover, and its contents consist entirely of three carefully annotated lists of breeding birds, in East Africa, "The Western Front," and Palestine. We are pleased to note that two of these articles are by Members of the M. C. O., viz., Hon. C. F. Belcher, now of Zomba, Nyasaland, and Captain C. R. S. Pitman, of Nakuru, Kenya Colony, East Africa. "The Oologists' Record" is a natural outgrowth of a little exchange sheet called "The Oologists' Exchange and Mart," which seemed to meet a well-defined need. This exchange medium is now continued as an insert for subscribers only, and is chock-full of chatty news and advertisements. We predict for Mr. Skinner an assured welcome and a field of increasing usefulness.

This issue is late. We know it. "We are not what we would be but what we must," some pessimist once groaned; and for once and *only once* the editorial staff agrees. We can only remind our friends that we didn't promise much, and cannot until "The Birds of California" has appeared. Just at present the editor is under contract to devote his entire time to MS revision and to half-tone designing for the *magnum opus*; and the task of seeing this Journal off press devolves upon his son, William Oberlin Dawson—who blushes his acknowledgements.

The most casual eye will note the dominant theme of this issue of the Journal. We have had Protectionism fresh, protectionism roasted, protectionism boiled, fricasseed and salted. Some remains will doubtless find their way into Monday's hash and Tuesday's soup. We make no promises, but we do express sincere regrets that much important matter, beside oological news and chit-chat not a little, has been crowded out or pushed forward into the next issue.

Among the matters deferred are some of such urgency that we shall have to address an after-season Newsletter, or Journal Supplement, to the Members of the M. C. O. This will concern itself with reports of Museum contributions, member addresses, draft of bylaws, and kindred themes, of interest only to members.

The Next Regular Issue of the Journal will be largely devoted to illustration and comment upon museum material sent in by members. It is natural and fair that the M. C. O. should endeavor to show its clientele what disposition is being made of their contributions. We have, for example, recently completed another drawer of Australian nests which we think is a dream. In this public presentation, however, no mention will be made of the personal sources from which the material exhibited has been derived. This will impose a real hardship upon the museum management, for we should be glad to publish our gratitude from the housetop. The consensus of opinion, however, appears to favor the restriction of laudatory comment to strictly member circles; and we bow our acquiescence. After all, the commendation of our peers is that which yields the greatest satisfaction in any line of endeavor.

NOTABLE OCCURRENCES AT SANTA BARBARA

Supplied by members of the Santa Barbara Bird Club (Local Members of the M. C. O.)

Sterna caspia. Caspian Tern. Sandyland, May 3, 1920. Dawson and club.

Fulmarus glacialis glaucopterus. Pacific Fulmar. Oct. 30, 1920. Bird flew over Stearns' Wharf and loitered about for some minutes. Dawson.

Herodias egretta. American Egret. Four birds made headquarters of the Beal Estero on the borders of town from November to January (Nov. 27 and Dec. 24, 1920, and Jan. 14, 1921). Dawson and club.

Butorides virescens anthonyi. Anthony Green Heron. At least one bird remained on or near the Beal Estero throughout the winter of 1920-21. Miss Walker and club.

Columba fasciata fasciata. Band-tailed Pigeon. Steadily increasing in numbers. Has been seen upon the south slope of the Santa Ynez Range for the first time in many years. March 20, 1920, flock of 13 birds, in Tecolote Canyon. Dawson and club. April 29, 1920, a small flock; Feb. 5, 1921, 50 birds; both in Rattlesnake Canyon—Commander Parmenter.

Strix occidentalis. Spotted Owl. Well seen in Romero Canyon, June 25, 1920, by Dawson and party of club members.

Pandion haliaetus carolinensis. American Osprey. Well seen hovering over eucalyptus grove near Los Colibris, March 18, 1921. Dawson.

Xenopicus albolarvatus. White-headed Woodpecker. Well seen by Commander and Mrs. Parmenter, Mission Canyon, Jan. 23, 1920.

Sphyrapicus varius nuchalis. Red-naped Sapsucker. Dec 27, 1920, Los Colibris,—Dawson. Feb. 5, 1921, Comdr. Parmenter and Miss Walker.

Archilochus alexandri. Black-chinned Hummer. Apr. 8, 1920,—Dawson; and April 9, 1921,—Parmenter; tentative early arrival records.

Selasphorus alleni. Allen's Hummer. Arrival, Jan. 28, 1921, noted by Parmenter. Nest with eggs found Feb. 14, 1920, by Dr. H. C. Henderson and club.

Tyrannus verticalis. Western Kingbird. Arrival, Feb. 28, 1921, by Parmenter.

Tyrannus vociferans. Cassin Kingbird. Mission Peak (alt. 3500), March 5, 1920. Dawson and club.

Nuttallornis borealis. Olive-sided Flycatcher. Nesting in numbers on Casitas Creek at altitude not over 400 feet above sea level. Henderson and Dawson.

Cyanocitta stelleri frontalis. Blue-fronted Jay. Seen at Shepard's Inn, on Rincon Creek, May 3, 1920, by club.

Spizella atrogularis. Black-chinned Sparrow. On slopes above Gobernador, May 10, 1920. Dawson and Henderson.

Cinclus mexicanus unicolor. American Dipper. Of regular occurrence and breeding in a canyon near Carpinteria. Set 28/4-20 taken May 10, 1920.

Nannus hiemalis pacificus. Western Winter Wren. Of casual occurrence; Jan 31, 1921, by Commander and Mrs. Parmenter.

Ixoreus naevius meruloides. Northern Varied Thrush. Usually rare or wanting, but notably abundant during the winter of 1919-20.

FAVORING BREEZES

"With much pleasure and interest I have read Nos. 3 and 4 of the 'Journal', especially your very important article on the oology of the Alciformes. The plate (coloured) of eggs of Jays and Northern Cactus Wren is excellent."—A. A. van Pelt Lechner (Letter, May 4, 1920).

"I don't think your venture presumptuous at all, rather I admire much your energy in attempting so big and so important an idea, the first real attempt I think to put oology on the footing it deserves. x x x If you care to send me a bundle of your Journals I shall be pleased to hand them round and to advise members to join."—E. C. Stuart Baker, F.Z.S., Hon. Secretary B.O.U., Cor. Fellow A. O. U.

"I have carefully and with great interest read the two double numbers of 'The Journal of the Museum of Comparative Oology' handed to me by my friend, Mr. E. C. Stuart Baker, and I must congratulate you and all concerned, not only on the Journal but also on the sound foundation on which you have commenced to build an edifice which shall be worthy of a science which has hitherto been painfully neglected, mostly, I fear, owing to the want of a lead such as you have initiated. I shall feel honored if you will be kind enough to enroll me as a member."—P. F. Bunyard, of London (Letter, Sept. 18, 1920).

"It is good to hear of the recognition the Museum is receiving abroad as well as at home, and I am indeed proud to have been the first outsider to recognize what the movement meant under your leadership. It will be a great pleasure to watch the organization grow, and I shall always be ready to do my small best to further its interests and to assist in extending its influence. — Harry Harris, Kansas City, Mo. (Letter, Aug. 20, 1920).

"Having been an inveterate oologist and an unreformable one for twenty-five years, it is needless to say that the Journal makes interesting reading, and I shall be glad to support your proposed 'Comparative Oologist'. At the season's end I shall send you some Tennessee sets, and I dare say they will be the only ones you have from this state (Correct!—Ed). —Albert F. Ganier (Letter, May 5, 1920).

"I must thank you very much for the Journals you sent me. They were exceedingly interesting and I hope in time you will be able to issue it with a liberal number of colored plates of eggs. I have only two regrets. One is that I do not live in Santa Barbara and the other is that your Journal is not published twice a week."—A. E. L. Bertling, Queensland (Letter, Oct. 22, 1920).

"I am very strongly of the opinion that much can be learned concerning the relationship of birds by a comparative study of their eggs, and am glad to know that this work is to be systematically developed. I shall be glad to aid in it so far as lies in my power.—Dean C. Worcester, Manila, P. I. (Letter, Sept. 21, 1920).

"Before the Museum of Comparative Oology came to my notice I found myself continually saying 'What is the use of endeavoring to collect oological material for my use, and to be seen by my eyes only? It may benefit me a certain amount, but how much more good it would do if all collections, materials, papers, and such like, could be accumulated and scientifically sorted out in one place, as then my small collection would be a help to others, and the great accumulated mass of material would be a far bigger ground of knowledge for myself!' I therefore feel honored to be a member of a museum which starting from my thoughts has emerged into a reality, and I heartily praise you for your enterprise in founding such an institution.—F. Schunck (Captain). 'H. M. S. Vectis' (Letter, Aug. 22, 1920).



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By WILLIAM LEON DAWSON

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The Journal of the
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Santa Barbara, California

1922

VOL. II

NOS. 3-4

THE JOURNAL

of the Museum of Comparative Oology

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Intended eventually to be issued as a Quarterly, but now put out as an Annual

VOL. II

DOUBLE NUMBER

NOS. 3 and 4

The Journal is sent gratis to Members of the Museum of Comparative Oology, of all classes, and to patrons of the institution. The subscription price to all others is One Dollar and Fifty Cents (or Six Shillings) per annum. Additional copies of this issue \$1.25, postpaid.

MSS. intended for publication, communications, field reports, inquiries, and offers of exchange and cooperation, should all be addressed to the Director, Museum of Comparative Oology, Santa Barbara, California.

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of the world, their nests and eggs

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Nest and Eggs (19) of the Fulvous Tree Duck, *Dendrocygna bicolor*,
the product of three females.

From autochrome plate taken at Los Banos, California, June 4, 1914,

By W. Leon Dawson.

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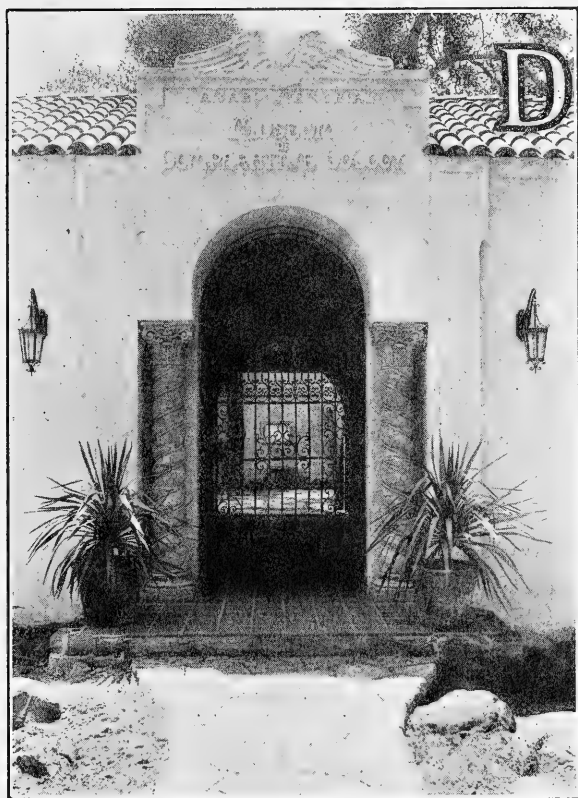
NOS. 3 and 4

[Issued October 26, 1922]

DEDICATION OF THE HAZARD MEMORIAL

The New Home of the Museum of Comparative Oology

April 17, 1922.

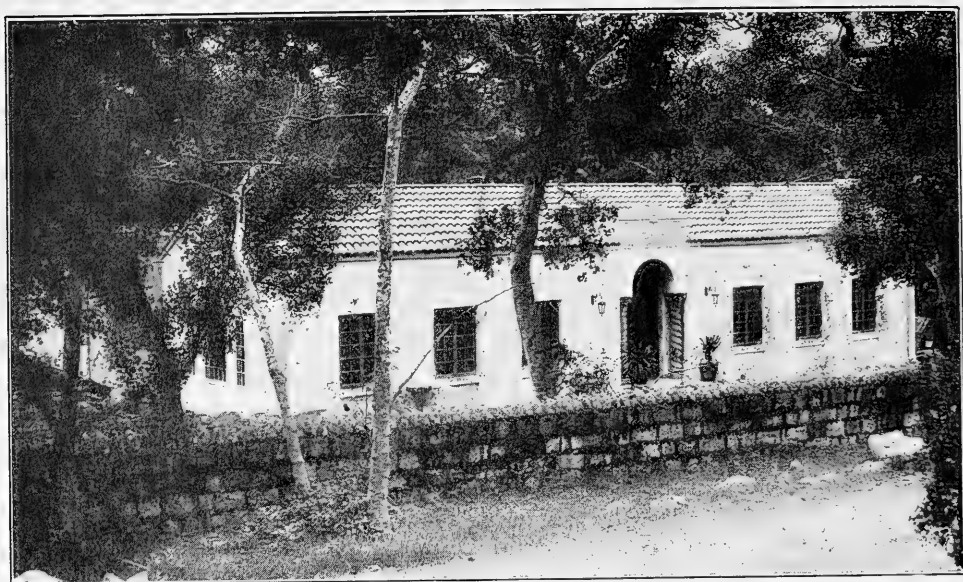


MAIN ENTRANCE

REAMS do come true. Substantial proof "as big as a house" and as enduring as the rocks, now reposes in a beautiful park which lies at the foot of "Mission Hill," the site of the historic Mission Santa Barbara. Rowland Gibson Hazard had dreamed of such a place; but God took the dreamer while he spared the dream. A devoted widow, Mary P. Bushnell Hazard, and a sister, Caroline Hazard, to whom the stricken head of the house was exceedingly dear, conspired together to immortalize an interest which, although subsidiary, was far from casual in the life of their loved one, and to enshrine a name already endeared to the recollection of the oological fraternity. The result is an ample and favorably situated building site of nearly two acres, the "Hazard Bird Refuge," and a commodious building, The Hazard Memorial, which now houses the

collections of the Museum of Comparative Oology.

The Hazard Memorial is a concrete structure some seventy-five feet square, with enclosed patio and attendant corridors. The architecture, Spanish Colonial, is not only in keeping with the best traditions of Santa Barbara's past, but is a part of a wide-spread and thorough-going local movement to restore and perpetuate that past. A few local builders are actually experimenting with the hand-made 'dobe bricks of a hundred years ago; but the modern equivalent of adobe is concrete covered with plaster, and this equivalent has here been fashioned into a museum building, at once quaint and serviceable, durable, and



THE HAZARD MEMORIAL BUILDING, THE NEW HOME OF THE MUSEUM OF COMPARATIVE OOLOGY

clean. Because the plan was studiously reminiscent in conception, we have such details as rough-trowelled walls, weathered doors and beams, hand-wrought hardware, gateway and posterns ravished from old haciendas or older missions, and a furnishing of antique chairs and tables and brasses, which make the assembly room at least a veritable old cloister. That the new home of the Museum of Comparative Oology is serviceable, attest such details as exhibition rooms—three of them, enough to house 100,000 eggs and 5,000 nests; an administration room equipped with modern office furniture and a steel filing system; a well lighted work room; a storage room; a sterilizing chamber; retiring rooms; and cupboards and cases of a dozen utilities.

After the assembly hall, which, somehow, one wants to call the chapel, in spite of its suitability for high teas and its more than suspicion of light fantastic toes, interest focuses upon the patio. This sacred precinct is a square not over thirty feet across, flanked on three sides with a broad-arched loggia, with tiled floor and roof—this tiny square, open to the sky, and partly paved with rough-hewn stone, holds three sturdy oak trees, which, with their fellows peeping over from the outside of the hollow square, afford an arabesque of sky-bound tracery, which matches the fondest dream of an earthly paradise. In the corners of the patio ferns vie with lilies for attention, while bright-hued berries clamber over mossy boulders. A bird fountain splashes at the rear of the enclosure; while as one looks out toward the street through a hallway of massive construction he finds that the quaintly fashioned iron gate which gave him entrance, rusty, bedeviled, and creaking, now stands in bewildering intricacy of outline against a range of mountains and the northern sky.

The guests of Dedication Day, some two hundred of them, chiefly personal friends of the donors, with patrons and members of the institution, saw all this; but they did not see, at first, what lay hidden beneath the curtains draped against the south wall. Two little girls, clad, the one in blue and the other in white, stood at attention before the curtain, while musicians, the last of the old Spanish serenaders, disposed themselves in a neighboring specimen room, and the guests found seats in the loggia or overflowed into the patio proper.

Dr. George Francis Weld, rector of All-Saints-by-the-Sea and dean of the Santa Barbara Diocese, speaking first, told, simply and tenderly, of his privileged

acquaintance with Mr. Rowland Gibson Hazard, and expressed the general satisfaction that the name of such a man should be held in abiding remembrance among us.

Miss Caroline Hazard, sometime President of Wellesley College and for many years a winter resident of Santa Barbara, read a brief memorial address, which is subjoined to this article; after which she made formal tender of a deed of the grounds to the Trustees of the Museum of Comparative Oology. In further commemoration of this event, Miss Hazard had caused to be prepared a beautifully illuminated parchment which, suitably framed, now hangs upon the wall of the assembly room. It reads as follows:

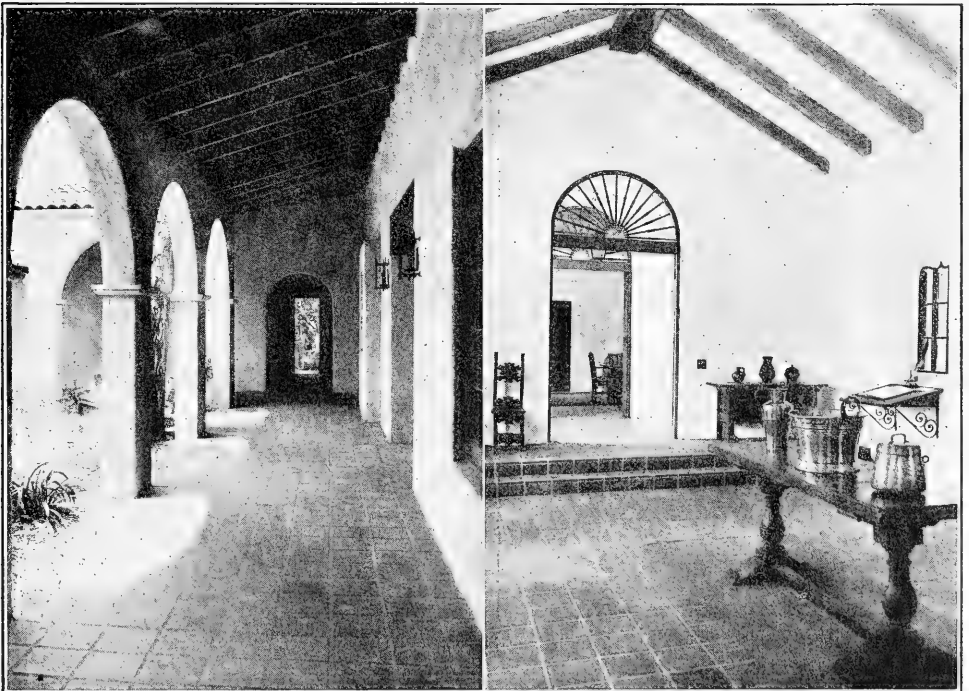
"The Trees of the Wood are full of sap, where the Birds make their Nests which sing among the Branches.

"CAROLINE HAZARD, eldest daughter of Rowland and Margaret Wood Hazard, from whom she inherited this land, hereby gives and grants to the MUSEUM OF COMPARATIVE OOLOGY a tract of two acres, more or less, with butts and bounds duly described in the records of the County of Santa Barbara, to have and to hold for a Bird Refuge and for other purposes of the Museum, as a perpetual Memorial of her eldest brother, first Honorary Curator of the Museum, ROWLAND GIBSON HAZARD."

Next Mrs. Mary P. B. Hazard, donor of the beautiful building which we were dedicating to her husband, with rare courage and self-possession came forward and addressed our President, Mr. James Marwick, as follows:

"It is a great pleasure to me, Mr. President, to make the gift of this building to the Members of the Museum of Comparative Oology and through them, I hope, to the City of Santa Barbara. 'Here at the quiet limit of the world may beauty be, and birds bring peace.' To you as representing the Trustees of the Museum I give this (presenting illuminated deed) as a deed of this building, and these keys as a token of possession."

This deed, also the work of the gifted illuminator, Robert Wilson Hyde, reads as follows:



A CORNER OF THE ASSEMBLY HALL

THE LOGGIA, LOOKING WEST



REAR WALL OF PATIO, SHOWING MEMORIAL TABLET

"This Building is given to the MUSEUM OF COMPARATIVE OOLOGY by MARY PIERREPONT BUSHNELL HAZARD as a Memorial to her Husband, ROWLAND GIBSON HAZARD, and especially to preserve and exhibit his collection of eggs, begun in boyhood, and bequeathed by him to this Museum. "Here at the quiet limit of the World may beauty be, and birds bring peace."

In graceful acknowledgement of these splendid gifts Mr. Marwick replied: "On behalf of the Trustees of the Museum and through them of the Citizens of Santa Barbara, I accept with profound thanks this very beautiful and complete Museum building, and these charming woodlands for a bird refuge, which you have so generously presented to us.

"I am sure that they will prove a great source of inspiration to the people of Santa Barbara, and especially to its High School and to other students of biology, besides being an attraction to scientists throughout the world; for it is an interesting fact that we have a greater list of contributing members scattered over all the great continents of the world than we have hitherto had of local members. With this splendid gift as an incentive, we hope that the residents of Santa Barbara will now accord to us their cordial support.

"I greatly regret that I did not enjoy the pleasure of knowing Mr. Hazard personally, but I can testify that in his lifetime no one, excepting our Director, who is a genius in his chosen profession, has done so much for the Museum as he did; and surely his interest and good work for it have lived after him and blossomed and yielded a wonderful fruit.

"To you, Mrs. Hazard, his widow, and to you Miss Hazard, his sister, the creation of this Museum building and bird refuge has indeed been a work of

love over which you have not spared yourselves, your time, or your thought; and I am sure that all the friends present will join with me in congratulating you on its beauty and completeness. What has been accomplished is remarkable, as the first sod was cut on the 2nd of February, that is, only a little over ten weeks ago.

"It may not be wise to attempt any prophecy, but were I to do so, I would say that starting today with such a Museum building, unique in itself, and with the great oological collection which we now have, it will not be long before we have, under progressive direction, a Museum that will be preeminently the leader of its kind in the world and a great asset to Santa Barbara."

At the close of the President's address the two little girls, Marjorie Weld and Barbara Dawson, drew aside, amidst a reverent silence, the investing curtains, and disclosed the memorial tablet of white marble wreathed in blue cinerarias. The tablet, which is now housed in a frame of exquisite blue terra cotta bears the following legend:

IN ABIDING MEMORY OF
ROWLAND GIBSON HAZARD
MAN OF AFFAIRS AND MAN OF LETTERS
LIFE-LONG STUDENT OF ORNITHOLOGY
THIS BUILDING AND THIS WOOD ARE DEDICATED.
O, ALL YE FOWLS OF THE AIR, BLESS YE THE LORD.

After an impressive reading of the tablet by Dean Weld and a brief prayer of dedication, the musicians deftly carried the mood from solemnity to good cheer, and a flood of congratulations ensued. Our Trustees and our local Members, of whom a large representation was present, hastened to add their thanks and words of unrestrained appreciation to Mrs. and Miss Hazard. The guests filed into the administration room, which for the occasion had been turned into a refectory; and soon dainty cakes and glistening pastries reflected the hospitable proclamations of the teapot and the coffee urn.

There were no infractions of the Eighteenth Amendment reported, but the Director-founder, having long suffered from pent-up enthusiasm, found vent for his gratitude by writing "At Home" after his name in the new register, thereby,



THE HAZARD MEMORIAL, FROM THE WEST.

it is understood, greatly scandalizing certain apostles of decorum, who do not understand what it may mean to escape from a "back yard museum" into a really truly museum palace.



IN THE PATIO, LOOKING NORTHEAST

THE MEMORIAL ADDRESS

Given April 17th, 1922 by Miss Caroline Hazard on the occasion of the unveiling of a tablet to the honor of her brother, the Honorable *Rowland Gibson Hazard*.

The significance of this occasion lies in the fact that we are assembled to dedicate a building to the memory of a man, in a state not his own, for a purpose which he loved, and for studies in which he was learned but which were not the main objects or achievements of his life.

My brother was a manufacturer by the ancient arts of spinning and weaving, having served an apprenticeship in the woolen mills of Belgium, as well as in his father's and grandfather's and great grandfather's mills of Peace Dale. Slack twisted yarn to him was an abomination; fineness, evenness, firmness of tissue and of life he believed in. Later the modern manufacturing arts of chemistry claimed him, with their wonderful by-products of fuel and dye stuff. His father had introduced a special method of chemical manufacture into this country, and my brother was largely responsible for its development. He had the vision and constructive imagination which makes the leader in affairs. To take raw material, whether wool, or lime, or iron, and construct from it something for the service of mankind, to have the world enriched rather than seek enrichment, this is the inspiring task to which the best American business men have devoted themselves.

But to say he was a business man, even in this enlarged sense, would only partly describe my brother. From early boyhood he was a nature lover. What autumn mornings they were when he tramped through the frosty woods to visit the traps of his own making and setting! Or the spring days with the birds' nesting expeditions, when he blew his own eggs, and neatly labeled them,

and put them away in a case of his own building! Later he studied arrow heads, being led to them by the Narragansett Indian remains, and branching out into archaeological studies till his collection included specimens from all over this country and Alaska. He was asked to show them in London, and made a Fellow of the Royal Society in recognition of his work in prehistoric fields. His paper on the Great Swamp Fight of 1675 was a fruit of his Indian study, and his edition of the Jonny Cake Papers showed his antiquarian research as well as his knowledge of local history, and the arts of book making. Ants and bees excited his interest, and he was never tired of walking in the woods, observing all the life with which it was thronged.

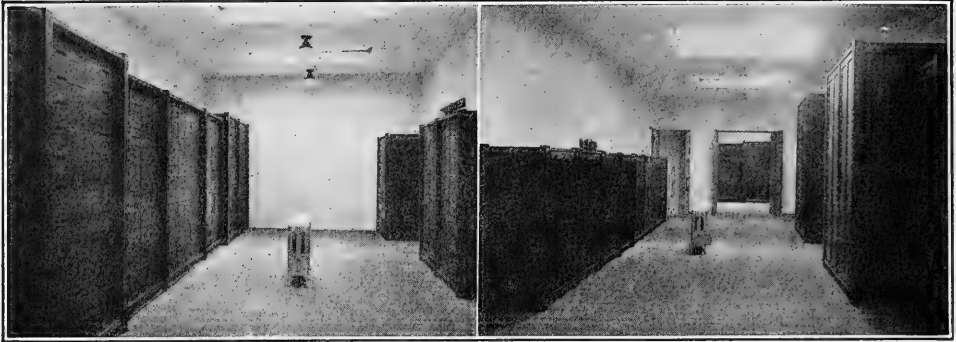
His love for Santa Barbara was no recent thing. In 1887 he and his family spent the winter and a portion of the summer here, and his beautiful photographs, which he developed himself, record his enthusiasm. In the Sunday School in Peace Dale, of which for many years he was the superintendent, hangs a large print of the Mission as it was thirty years ago. The sycamore trees delighted him, and he made endless studies of their mottled and twisted trunks. There were occasional brief visits later for short vacation periods as the burden of his increasing affairs pressed too heavily, and finally in 1916, "a minute man" as he himself said, he came here for the healing of Santa Barbara. Here he reverted to the delight of his youth, which had never been abandoned, but which from stress of other things had been in abeyance. His last months were made happy with the old interest. He came to the work room of the Museum, and himself worked with his exquisite, sure touch, which could handle the frailest egg shell, and his accurate eye, which knew and recognized the most delicate markings and rejoiced in subtle colorization. Here once more he quaffed never-failing fountains of joy, to the refreshment of body and spirit.



THE WEST ENTRANCE: OLD SPANISH COLONIAL DOOR FROM MEXICO

He admired the genius of Mr. Dawson, with whom he worked so happily; he believed in this Museum which Mr. Dawson founded; he wanted his own collection to be here.

And so I am happy, Mr. President, to present to you this deed of the land on which this building stands; land that was his father's and my father's, where "the trees of the Lord are full of sap—where the birds build their nests, which sing among the branches."



THE SPECIMEN ROOMS
AUK HALL (fronts of new cases removed)

BRANT HALL

THE NESTING OF THE SIERRA NEVADA ROSY FINCH

(*Leucosticte tephrocotis dawsoni* Grinnell).

By William Leon Dawson

(Based chiefly upon material awaiting publication in "The Birds of California").

In one sense at least the American *Leucostictes* stand at the very apex of evolutionary progress. If life began, as the biologists assert, in the depths of the ocean, then it is the "Leuco" who has carried life's banner highest. Today he flaunts it from the mountain peaks, from Shasta and Whitney no less than from Blanca and Baker and Robson. If lofty association means anything for character also, the Sierra Nevada Rosy Finch ought to be the very best of birds, for it is his privilege to spend a lifetime wrestling with the eternal snows. Be that as it may—and we, perhaps, are not able to set up the standards of bird ethics—there can be no doubt that this exalted breed of birds affords one of the most fascinating studies which western bird-life offers. And because its ways of life have been so long remote from ordinary observation, the *Leucosticte* has been invested with something of the same sanctity which, in the thought of Nature's purest worshippers, clings about the vestal mountains. It seems a sort of sacrilege to bring them down, these vestal mountaineers, to ply them with questions of food and raiment and manner of life. The author knows something of these things, perhaps as much as anyone, but instead of telling about them he would rather sing a paean and draw the curtain of respect. It is one thing to know the Eleusinian mysteries, but quite another to proclaim them from the house-top. Your pardon, gentle *Leucos*!

A technical description of the *Leucosticte*'s wardrobe may be found in any manual, and we pause here only to note that the rosy fringes and flushes which decorate its sober browns are a common adornment in the family *Fringillidae*. There are, it may be, a hundred species of "rosy finches" at the very least, so that the attempted monopoly of the name "Rosy Finch" for our American mountaineer is absurd and futile. No more fortunate is the name "*Leucosticte*", meaning "varied by white". The whitish edgings on this bird are few and obscure and in no wise distinctive. The name "*Leucosticte*" is a jaw-breaker, and the public will not stand for it. We are in a box. But since we

are in it, let's make the best of it, and abbreviate our angel's name to *Leuco*. Never mind what it means; nobody pays any attention to Greek nowadays. It sounds distinctive, not to say expensive, and a wee bit endearing. Shall it be "*Leuco*" then?

What, now, does our divinity eat? To all intents and purposes, *snow*. Watch a company of them deployed over a snow-field, hopping sedately from crest to crest of the tiny ridges, or else escalading into the pits which the sun has made. They are pecking industriously at the surface as they go, and accumulating—well, not snow-flakes, nor yet snow-balls, but *frozen insects*, instead. It is marvelous what a varied diet is offered to these patient gleaners of the glaciers. The warm winds wafted up from the great Interior Valley bear moths and beetles, bugs and winged ants, they know not whither; and these, succumbing to the sudden cold of the Sierran heights, fall in a beneficent shower over the *Leuco*'s table. Doubtless a few predatory insects, in a more active state, may be found. If it be asked what the predatory insects, in turn, feed upon, I point to the black "dust" which lies scattered over the surface of a June snowbank in such a uniform fashion that suspicion is aroused. These tiny black specks, a score or so to the square inch, are insects—of what order I cannot tell—insects not over a millimeter in length and perhaps a tenth of that in thickness. Thus I saw them in myriads about Mammoth Crest in 1919. What their little businesses might be, I could not conjecture; but they were quite active, and, as certainly, they were on their native heath. When one breathes upon these insects they disappear, and they do so by diving into the depths of the snow—or, say, to a depth of three or four millimeters, down the interstices caused by the action of the sun. There's romance for you; and there are, speaking in all sobriety, about forty billion of these snow bugs to the square mile.

As the season advances and the area of the snow fields is reduced, the *Leucos* resort to the south slopes of the peaks, where yellow-winged locusts and deer-flies and the hardy butterflies, notably *Vanessa californica*, hold forth. These they pursue on the ground, or else seize in midair by dextrous leaps from below. They feed also at the lower levels over the heather beds and in the vicinity of the cirque lakes. Once I saw a company of these *Leucos* feasting on caddis flies. So eager had they become that they lighted upon the stones which protruded above the water of a shallow lake, where they could seize the becoming-caddisflies as they crawled out of their chrysalis cases. Although this was well below timber line, I never, save once, saw the *Leucostictes* alight in a tree, and I have an idea they feel very ill-at-ease in such a situation.

No bird, however, could be more thoroughly at home, or more matter-of-fact in its behavior, about precipices or in ice-bound couloirs. Whether in nest-hunting, mate hunting, or in the ordinary quest for food, a *Leucosticte* will flit from crevice to point up the face of a twelve hundred foot escarpment as though it were a garden dike. The crannies are explored in leisurely fashion in quest of lurking bugs; and, if it is mating time, the bird pauses to sing, or rather, chirp, from some eminence that would make an *Alpensteiger* dizzy. The "berg-schrund", or chasm where the rock-wall and ice-wall part company, has no terrors for the *Leuco*. Once I saw a precocious infant (of *L. t. hepburni*) which had tumbled into one of these places some thirty feet in depth; but mama was feeding him and he was as cheerful as a cricket, expecting, no doubt justly, to win out again after his wings were a little stronger.

Beyond the fact that the Sierran *Leucos* are mildly sociable at all seasons, and definitely gregarious in winter, little is known of their habits and economy, save as observed casually by campers and mountain climbers, and more definitely by questing oologists. Whatever may be the popular or even Audubonian opinion of the last-named gentry, there can be no question in any honest mind that science owes much to the tireless research of the bird-egger. Granting that it is the lure of the trophy, the first or early possession of a something, however trifling, which the other fellow hasn't got, which impels the prodigious toils of the oologist, it remains true that in four cases out of five it is the field oologist who has brought back the first adequate accounts, not only of nesting,

but of behavior and economy, of song and courtship, and of most that goes to make up the vital interest of a bird.

So far as the records show, it was Henry W. Carriger who, in June, 1910, found the first occupied nest of the *Leucosticte* within the limits of the United States. Certainly he was the first to find a nest of the "Sierra Nevada Rosy Finch". This nest was taken on the 22nd of June by Milton S. Ray from under a boulder, one of myriads constituting the great weathered-out rock field which covers the upper slopes of Pyramid Peak (alt. 10,020 ft.), in Eldorado County, and within 150 feet of the top of that mountain. This nest, n/4, now reposes in the cabinets of the Woodland Heights Museum of Analytical Oology. To Mr. Ray's vivid and enthusiastic description of the exploit there is little to be added save the biographies of the participants.

The second set of eggs, n/5, now resting in the Thayer Museum, was taken by H. H. Kimball, June 20, 1915, at an elevation of 8900 feet.² I am under the impression, also, that Dr. P. B. Moody, of Sand Point, Idaho, has taken eggs of the *Hepburn Leucosticte*, a related subspecies, in Idaho; but if so, the accounts were obscurely published.

The lure of the *Leuco* has always possessed a peculiar fascination for the author since his first encounter with the bird (*L. t. hepburni*) in 1896 on Wright's Peak, in Washington. In view of this special weakness, he craves pardon for indulging, for once, in a historical resume of his own experience.

In July, 1900, a nest which could have belonged to no other bird, was found in a peculiarly exposed situation, just below the summit of Wright's Peak (alt. about 9300). The *Leuco* search was the motif of a few days spent in the high Cascades in 1906, and again in 1907. On the latter occasion an old nest and a nest containing young were found.

In California in June and July, 1911, a determined search was made along the mountains accessible from our camp at the Cottonwood Lakes; but although the birds were common at altitudes ranging from 11,000 to 14,000 feet, only one location was made during the season, and that one accessible only to the birds. The nest, whose existence was attested by visits of the male bird, was placed out of reach in a horizontal crevice, thirty feet over on a cliff which overlooks Army Pass, and which is sheer three hundred feet in height. By dint of going over the brink some fifty feet further west, I succeeded in worming my way, face down, along a ledge to the entrance of the crevice. It proved to be narrow, crooked, and altogether impossible — whereat I spat, reflectively, 270 feet, and wished I had never come.

On the 21st of July, 1913, while in company with a dozen fellow members of the Sierra Club, engaged in scaling the North Palisade Peak (alt. 14,254), I came upon a nest containing five young about three days old. The nest was set well back in a cranny, which fronted a sheer drop of some two hundred feet, and it must have been within six hundred or seven hundred feet of the summit, say at an elevation of 13,600. This was, apparently, the second California record.

In June, 1919, the field party maintained by the Museum of Comparative Oology made headquarters in the throat of Mammoth Pass in Mono County, at an elevation of 8500 feet. From this camp as a base we made several visits to the higher altitudes of the southerly-lying ranges, and spent eight nights in desultory camps made on rock ledges or rocky moraines. The following account, beginning on June 18, 1919, summarizes our experiences and fortunes.

It looked terribly steep, that north-facing snow field which led down from the Mammoth Crest, but the westering sun, backed by a searching wind, urged a quick retreat to camp four miles away and 2500 feet below. The snow-field reached the very top of the ridge, choking the throat of a couloir and expanding below between massive cliffs several hundred feet high. The left flanking cliff was dark in shadow, but the east-flanking wall was still bathed in sunlight. There might be *Leucos* down there; and a slide would save miles of walking.

¹. The Condor, Vol. XII., Sept., 1910, pp. 147-161.

². John E. Thayer, in epist., Aug. 5, 1919.

Accordingly, I let go, pike-point hard pressed against the rasping snow. The first hundred feet might have been a parachute drop. The course was narrow. Ominous ledges suddenly flashed up at the side. The startled snow, half ice rather, flew up and engulfed my glasses. Steering had to be by instinct, and only frantic efforts kept the hurtling pilgrim right end up. But soon the pace slackened. Sun-kissed wells in the snow began to act as bumpers, and motion ceased presently, while the heart was still in a sort of panic. A Leuco spoke. Tearing off the blinded snow glasses, I looked up—just in time to see a female *Leucosticte* disappear into the face of an obliquely fronting wall, and at a point a hundred feet or so up. Moments passed, and still she stayed. "A location" thought I, and backed off, slowly, across the snow, with eyes glued to the mysterious spot, until I felt the impact of the west wall, and, scarcely turning, clambered out upon a ledge. It was a cold ledge but not so cold as that penetrating snow. Sure enough, the bird has never stirred from that spot. But now comes a male sidling up to a neighboring point and giving a chirrup, whereat the hidden female darts out and joins her mate for a frolic. It is a probable location, albeit unconfirmed.

Two evenings later, fortified by the presence of my son, William Oberlin, a stripling of nineteen, I take up a station with him on the identical ledge which had witnessed the location. There is barely room on this rocky shelf for two persons to lie down; and if one rolls off, why it is only a hundred foot slide over snow. We have brought up grub and blankets and a jag of wood. While William makes camp, although it is beastly cold, I man the binoculars and watch every bird that stirs over the snow or works across the face of the towering cliffs beyond. There are birds in plenty—for Leucos—say three or four in sight at once. Usually two or three are gleaning industriously over the face of the snow-field. The snow is in full shadow and the birds are most active at this time, partly because the glare of midday no longer blinds the eyes and makes snow work practically insufferable, even for birds, and partly, no doubt, because it is the last chance.



SUNRISE LEDGE: CAMP OF LEUCO NESTERS, 1919

If there are nesting activities on, they are conducted sub rosa. There is no eagerness to display domestic secrets. These must be ferreted out. But there is lavish display of romantic interest. Males are chirping loudly from vantage points; and as often as one of them discovers a female, presumably unengaged, he darts down into her neighborhood, then sidles over toward her, hat in hand, so to speak, and pours forth a strident flood of amorous professions. The antics in which one of these hot-hearted bachelors engages are lush beyond description. If the lady will endure his presence at all, the male fairly perspires adoration. His wings quiver and his whole frame trembles. He turns about, slowly, in order that his enamored one may see how his every feather is engulfed; or if he pauses, he puts up a wing affectedly, as though to shield himself from the lady's overpowering glances. If the lady is cold—cold, but not impossible, in the very extremity of despair the smitten one procures a wisp of straw, seizing it by the middle, and bearing it about like a huge moustachio, the while his eloquent pleas are pouring forth. By this act, of course, he signifies that he speaks of conjugal affection. The lady must be won to a sense of responsibility. The days are long but the snows are melting. "Oh, will you? won't you? say, why don't you cast your lot with mine?"

These advances have various denouements. If the female is indeed smitten, as must in the nature of things sometimes happen, the couple adjourn to some cave among the rocks and carry out the purpose of love in secret. If the lady is only shy she sidles off, or flits, and there is instant pursuit. The couple charge about like meteors amuck, and if they do not dash their brains out, it is good sign that love is *not* blind. But if, as oftener happens, the lady is either previously engaged, or minded to try out the young swain's professions, she makes spiteful dabs at her admirer while he falls back in pretended and ecstatic alarm. Oftener still, the swain is addressing a lawfully wedded wife, for it seems to be his principle to try all doors till one of them yields. In that case, the lady tells him quickly to be off about his business, and is obeyed, or else—an avenging bolt falls out of the blue. The lawfully wedded husband, who nine times in ten is on the job, whether near or remote, falls upon that young rascal and either chases him clear out of bounds, or administers an actual drubbing. There seem to be more males than females, and it is proper form for the ladies to be always attended by their mates in public.

On this evening in question we followed the fortunes of a score of these advances, and retreats, or sudden flights, but sorted out only two events of any significance: A male bird fed his mate (or young) in a crevice only a dozen feet up on the opposite wall; an unattended female, who fed quietly over the snow for half an hour, had such an authoritative way in "bouncing" her unwelcome admirers, that we kept our eyes focussed upon her ultimate determinations. The significant moment came. When the shades of night were gathering thickly she quickly withdrew from the field and lost herself, immediately, in a hole, one of a dozen lying at the back of a great shattered niche in the wall, from which tons of rock—a schistose granite—had recently fallen. This location, if location it was, was forty feet below location No. 1, and fairly in a vertical line with it.

Fearing above all else a premature attack, we left these prospects to ripen, and visited instead the lower nest, where there was a suspicion of young. Sure enough, there were five youngsters about five days old, in a sturdy nest, which must have held its complement of eggs about June 2nd, the earliest recorded or inferential date for Leucos.

Days of tireless and all but unrewarded quest followed. Beetling cliffs began to lose something of their terrors, and if a bird disappeared midway on a six hundred foot precipice, instead of resigning in despair as we had been inclined to do at first, we calculated soberly the chances of approach by wells or ledges, or dangling ropes. A female traced to a hole eighty feet up on a sheer cliff emerged presently with a white foecal sac. No need to bother that nest then. Another, 200 feet up and 200 feet over, seemed more feasible, and we determined to try it later. In the meantime we kept looking for confirmatory evidence regarding



SUNRISE CLIFFS: MAMMOTH CREST. WHERE TWO SETS OF LEUCCS' EGGS WERE TAKEN WITH ONE CAST OF THE ROPE

the early prospects. We learned that the feeding visits of a male to his mate on the nest were exceedingly infrequent. The females themselves, apparently, indulged two feeding periods,—one about eight or nine o'clock in the morning, and the other after sunset. In most instances, whether by male or female, the approach to the nest was made by leisurely stages. Significant actions were lost in the maze of casual appearances, or under a camouflage of indifference. At last, however, on the evening of the 23rd, spying chillily from our snow-and-rock bound ledge, we had the satisfaction of seeing the male bird visit the original location site, where he fed and departed. The next morning we caught the unattended female, she of the shattered niche, flying straight to her domicile, and disappearing. As luck would have it, we were standing at the time on the snowfield immediately below, and saw precisely which one of the twenty odd crevices she entered. It was time for action.

The writer elected, for reasons which need not be dwelt upon, to direct operations from below, while two of the party, my son, William Oberlin, and our field assistant, Robert Canterbury, equipped with ropes and pikes, made the lengthy detour and approached from above. The cliff was full five hundred

feet high, but the upper portion was receding and graduated, by reason of the jointed character of the rock, into a sort of grim staircase. The "steps" themselves, however, sloped sharply, and it was no small task to get within forty feet of the nest from above. Here the boys set their pikes in a fissure and attached a 150-foot rope, which reached the bottom of the cliff, with ten feet to spare. Down this William presently descended. With a shout he greeted the appearance of the first nest, and with another shout reported that its four eggs were fresh. The nest, it seems, was set in a shallow cranny almost invisible from below, so that the eggs were only four or five inches in, and the skirts of the scanty pile reached the edge. The female had darted off when the rope was cast over, but she returned now and circled the clinging lad with anxious cries. The eggs were put hastily into a box, and the nest went into William's hat, after which he quickly descended a matter of twenty feet, where a tiny ledge afforded temporary respite. Here he managed to pack the eggs securely, to wrap the nest in tissue, and to lower them both to my waiting hands.

The next site, a little to one side, is much more difficult. A deep recess some twelve feet wide, eight feet high, and from three to six feet deep, has been formed by the recent defection of a great block of schist. The back of this cavity has been rent and shattered as by an explosion. Some of the ragged fragments are ready to tumble at a breath, and the overhang itself looks very unstable. I besought William to arrange his loops for entirely independent action; but he neglected to do so at first, with the result that when he did eventually cast them, as he was obliged to do, they were not well placed, and one was non-functional.

It was fortunate that we had seen the exact spot at which the bird had entered, and that I was able to indicate it from below. Peeping in, the boy saw the skirts of a nest set well back and quite unobtainable. The overhang was so great that William had great difficulty in keeping in touch with the situation. There was not sufficient projection from the cliff itself to support his weight entirely, so he struggled with the diverse purposes and functions of rope and knob. Finally, in desperation, he ascended the rope a little and pried frantically with his foot at the most obstructive rock. By alternately bearing down and toeing up he succeeded in dislodging it, and it fell, a hundred-weight, crashing amid a cloud of rock-dust. When the air cleared, the boy beheld a handsome nest now scantily supported, but holding four eggs apparently fresh, "93/4-19 Dawson's Leuco". Now to retrieve them! He first tried the use of the box. With a foot on the cliff, hugging in, and the other in the loop of the rope, and with the left arm about the rope and the hand clutching the box, he reached up with the right and had abstracted an egg, when another supporting rock of twenty pounds weight or so let go, bringing the nest down with it. The boy frantically intercepted the nest while the rock placidly lighted on the back of his neck. He succeeded in shaking off the incubus and at the same time holding onto the nest amid the attendant smother of rock-dust. This was, it must be confessed, a rather complicated moment. There was evidently some attendant language, more or less smothered by rocks. Will says he expected to find an omelette in the nest; but he somehow managed to replace the egg which he had clutched in his right hand, and to remove the whole mass, eggs and all, to his hat. This he necessarily gripped in his teeth, and slid thirty feet, to safety, without more ado.

To his great delight, and mine, he found the eggs absolutely uninjured. Two perfect sets of *Leucosticte* eggs, worth say \$400 "exchange," retrieved on the descent of a single line! There was an exploit to be remembered with pride and gratitude!

Leaving the boys to recover from their exertions, I cleared, that same afternoon, for a distant prospect which I had named the Grand Cirque, and where an elaborate system of north-facing snow-banks protected by rugged peaks was nursing half a dozen cirque lakes, whose waters eventually find their way into the San Joaquin River. Arrived, toward evening, upon these happy hunting grounds, I first paused to make camp on the upper reaches of the central



LEUCO CLIFFS: THE GRAND CIRQUE. THE GRAND MORAINE IN FOREGROUND

moraine. I don't mind rocks for bedding—am rather fond of them, in fact—but insist upon an approximate degree of horizontality. The bed I constructed there of schistose slabs, levelled and matched to a nicety, amid a chaos of boulders, fills my heart with reminiscent longing at this distant and comfortable moment. To live over again the early triumphs of cave men is one of the sweetest privileges of the Sierras. Thus fortified by the certainty of slumber, I addressed myself for the remaining hours of daylight to the snowfields and the cliffs, and soon had the satisfaction of making a location. This was confirmed by a later, and enduring, visit of the female, at a point midway of the main cliffs, and on a wall about 425 feet high. Forbidding as the prospect appeared, I saw how it might, conceivably, be reached through a succession of wells, or deep fissures, whose lowest ramification extended to a tiny ledge, which seemed to command the very niche on which the Leuco had lost herself. Repairing, accordingly, the next day to the peak (altitude 11,600), with Robert, who had joined me, we contemplated the descent. It was not alluring. It was, in fact, abominably steep, and a good bit further than we had counted on. We stripped to the barest necessities, save rope and pikes (both a mistake, as the event proved), and prepared, with some little trepidation, to go down. The passage may be described briefly as a well, a near perpendicular ledge, and a well. The upper well was obstructed in two places by rock masses lodged in its throat. It was easy to pass behind the uppermost of these obstructions, but the other forced us outside. There was nothing here but two blank walls. Bob felt confident, but I was dubious. Finally, I let him down with a rope to the first convenient landing, and saw him climb up again, to prove that it could be done. Still a little timorous, I had him let me down, by way of playing safe, till I got the feel of the thing (we had but one rope and had to take that down with us.) The very walls here were treacherous, for their stability had never been tested save by the soft falling snow. Block after block I flung down as we descended, so as to forestall the danger of attack from behind.

The upper reaches of the second well were occupied by a snowbank and a slithering mass of treacherous accumulation, gravel and wash, all too steep for

occupation; but guarded on the outside by a ledge which we had difficulty in descending. When the ledge rose again to the proportions of a guardian wall, we were compelled to consider the well proper, a black hole at least a hundred feet deep with about a five to one grade,—that is, the bottom about one hundred feet further down was about twenty feet further west. I first dropped a big boulder down, both because it was threatening to go itself, and to test the depth. Out from under its ricocheting passage darted a *Leucosticte*, midway. Perhaps the damage was already done, but, anyway, the fever for removing loose rocks was so strong upon us that we sent others down the well, reckless of possible damage to Leuco's eggs. But cooler counsels soon prevailed. Anxiously we thought, "Perhaps that Leuco's nest is not very far back from the wall, after all." So the larger obstructions which remained were lifted one by one and passed up to be cast off outside.

While we were deliberating as to the use of the rope, the Leuco fluttered into the well, and lighted at the entrance of one of the possible side tunnels. Evidently, what she saw displeased her, for she flew away again. Soon she returned and went further, apparently covering the nest. But she was ill at ease and her quick departure filled me with further forebodings. Sure enough, when I had wormed my way down thirty feet or so, the eggs flashed into view, four of them, but one of them marked by an ominous-looking black spot, which proved, indeed, to be a gash. When I arrived, at last, at the nest level, puffing and wet and bedraggled—the walls were oozing icy water—I found that every egg had been struck by tiny flying particles of rock. Two were quite badly caved, but all are savable, and the nest is an elegant and generous structure of compacted mosses which in itself would have been worthy of preservation. The gloomy chamber in which the nest reposed was not over fourteen inches in total depth from the side wall, and the wonder is that the eggs were not scrambled.

Of the further descent and of the discovery that the nest on the outside wall contained young birds a day old, I need not speak. We found the rope was useless, because of the danger of falling rocks. We had to keep close together, so that whatever was inevitably dislodged might not acquire a dangerous momentum. We wormed our way up, therefore, as we had wormed down, viz., by bracing our backs against one wall and gluing palms and toes to the other. The round trip consumed exactly two and a half hours. Viewed dispassionately from the outside, the undertaking looks foolhardy enough. I am quite sure I would not go down the same wells to recover a fifty dollar purse; but I am equally sure that either of us would go as far, or further, for a set of Leuco's eggs. "94/4-19 Sierra Leuco" now reposes in the cabinets of the Museum of Comparative Oology and they are *not* for sale.

Well; this is not a monograph of the *Leucosticte*—nor a biography of the author. What follows must briefly summarize the experience of those glorious days. It is only by spending continuously the months of June and July in Leuco country that one comes to realize how sharply the resident population of Leucos divides upon the question of nesting sites. The cliff-nesters find their favorite sites available in June, and they, accordingly, fall to early in the month. The moraine, or rock-slide nesters expect their home sites to be buried in snow until late in June; and, subject to the variation of the seasons, nest complements may be expected in such situations at any time from the 1st to the 20th of July. The noisy scenes of courtship, therefore, may extend from the middle of May to the middle of July; but the actual nesting is conducted so quietly, so decorously, that the inexperienced student is likely to be utterly deceived.

Theoretically, it ought to be perfectly easy to trace a building female in such exposed situations as constitute the habitat of the Sierra Leuco. But, practically, one marvels when they do build. At least *Leucosticte* psychology has not yet been codified. Some females transport materials surreptitiously and spend days at it. Others build furiously while the fever is on, and are done. One bird which I had traced at midday had started her nest under a boulder on the side of the central moraine of the Grand Cirque, at a point not three feet distant from the retreating snowbank, and on a level with it. She secured her

material, grass and roots, by the beakful on a young meadow some two hundred feet away; and in the half hour during which I had her under observation she averaged *a trip a minute*. On the minute schedule she would spend about forty seconds gathering a load and fifteen or twenty seconds in arranging it; but I saw her speed up to twenty and five, respectively. The male, meanwhile, made himself useful by conducting periodical inspections, and offering advice (unheeded, no doubt), but chiefly by mounting guard and chasing off intruders. Needless to say, the birds did not resent my presence, for concealment is impossible under the pitiless glare of a Sierran noonday.

When we saw a *Leucosticte* seize a blob of cotton-batting which had blown off our ledge onto the snow, and bear it off in triumph toward a neighboring moraine, we thought that our oological fortunes were made. We dashed after her forthwith; but somewhere near the rocks an aerial scrimmage developed into a quite spirited affair, in which half a dozen *Leucos* and a snooping Clark Nutcracker figured. It was all over in a moment; but when the smoke of battle had cleared away, we saw nothing of bird, cotton or nest. A second theft was no



THE GRAND CIRQUE, LOOKING WEST. THIS IS A TYPICAL FEEDING GROUND

more successfully traced, for the fugitive had no sooner disappeared around a sharp turn than she gave up all further interest in nest-building. A third, indeed yielded a location; but this was a matter of sheer luck, for the bird used cotton *only once*, although tempting morsels were, by now, distributed all about the moraines.

While it is true that the nest-hunter's day is punctuated by such episodes as these, the reader should be reminded that hours of unrewarded vigil precede or follow these occasional flashes of revelation. The rigors of the evening hours, which are the best for observation, are most unrighteously offset by the ardors of midday, when, if one is obliged to be exposed, he feels more like a roasted marmot than a self-respecting scientist. More than once under the intolerable glare I have confessed myself "plumb leucoed", and have beaten for shelter.

The nests of the *Leucos* are always fully sheltered. They are set back in niches or placed under boulders, sometimes in chambers of generous proportions,

and always beyond the reach of rain or snow. The birds show wisdom, too, in avoiding the established paths of falling rocks or melting snows. The Leucos themselves are fully alive to the dangers of avalanches and there is an uneasy movement, or a sudden taking to wing, whenever a rock fragment "lets go" in their neighborhood.

Some of the nests are drab-looking affairs, especially where weathered grasses are the only materials obtainable. Some, however, are wonderfully compacted of mosses, and are lined with feathers or other soft substances. An example in the M. C. O. collections has a black flight feather of the Clark Nutcracker set at a rakish angle in its brim. Another boasts a Rock Wren's plume, and has a lining of cotton, feathers, and *human hair*. The nests are, naturally, of the sturdiest construction, with walls from one to three inches in thickness, and with hollows deeply cupped. By reason, therefore, of their substantial character, as well as their protected situation, old Leucos' nests will reward patient search in almost any part of our higher peaks.

Eggs of the Leuco are of the purest white, unmarked. Their shape is ovate, or elongate ovate, with an unusually sharp decrease in size toward the little end. This shape is said to be characteristic, also, of the genus *Montifringilla* of the Old World; and the oological evidence goes to show that the two genera, *Leucosticte* and *Montifringilla*, have a common origin.

The pace of the Leuco day quickens when those white ovals part and naked babies, to the number of four or five, are born into this world of snow-glare and hunger. The parents, however, have capacious throats, or crops, and to obviate the handicap of the long haul, comparatively infrequent visits are made to the nest. I have seen parents making trips every five minutes, but ten—or fifteen minute intervals are more usual, with half an hour, or such a matter, for older birds. Food material rarely protrudes from the parental beak, but the nature of the visit, whether parental or conjugal, may be surely determined by the presence or absence of the foecal sac, the laden diaper, without which no self-respecting parent will quit the presence of his (or her) offspring. We should hesitate to investigate this intimate matter, were it not for the cocky assurance and frank delight with which the fond parent bears off this lowly emblem. He seems to come like the bearer of good news and beams a cheerful "Family well" in response to our courteous inquiry. As matter of fact, this arrangement for rigid sanitation is one of the most marvelous and commendable features about a well-appointed bird-home. The infantile economy operates with the precision of clock-work. In goes a ration of insects, out comes the wastage of a previous feeding, all done up in sanitary white wrappings. The parent seizes the bundle and carries it two or three hundred feet away before dropping it. The nest and its vicinage are kept immaculate, and the bird's arch enemy, the Clark Nutcracker, has no clew from careless ordure, as to the presence of possible victims.

The little ones are silent for a day or so, but as their strength increases they greet the returning parent with an increasing uproar of satisfaction. The secret is out, now, for such as will hear, but it is not until the day of first flight that the outcry of the youngsters becomes incessant. Hearing that he was out, I pursued the first-born of a certain brood with photographic intent. But the youngster was wary. He fluttered and chirped his way around the east wall, and then when I headed him off, he spread his little wings and flew clear across the amphitheater, a distance of near a hundred yards. He made a successful landing on a ledge, but afterwards he fell into the *bergschrunn*, from which he was rescued, or coaxed, by his anxious mamma. This youngster once out, cheeped without intermission for at least eight hours. I timed him once, and he cheeped exactly 104 times in a minute. That's 49,920 cheeps in a union day!

In complete contrast with this bantling's behavior was that of a baby sister (?) whom I found sitting quietly on a rock-slide. When I approached she said nothing, but started out bravely, and tumbled in the snow thirty feet away. Distinctly bored by this show of bad form, she presently tried again; and I'm blessed if she didn't rise on those little wings and make the west wall as valiantly

as her noisy brother had done. Moreover, she sought a well and hid quietly, while the cheeper winged off for other fields,—much to our relief.

The Leucosticte is not, as I had once supposed, songless. It would be fair to say, however, that he is tuneless. The “song” of the male consists only of a high-pitched ecstatic (for him) chirping, reeled off by the minute and without definite intermission. The notes vary so in “quantity”, i. e., in length and intensity, that an effect as of several participants is produced by each performer. Three artists at a time will produce a “din,”; but the resulting effect of large numbers does not exaggerate the abundance of the birds. Most of them are silent. During the courting season the chirping choruses are kept up for an hour after the last rays of sunlight have faded from the highest peak. The din so created reminds one rather unpleasantly of a company of English Sparrows fore-gathering in an ancient ivy, and quite too hilarious for sleep. Again, before sunrise, there is an outburst of tuneless racket, followed, very shortly, by dead silence.

Akin to these strident chirps, but of very different function, are the questioning notes: *zee o, zee o, hootititeet*. The first couplet, strictly speaking, constitutes the inquiry, while the *hootititeet* usually announces the intention to fly to another spot. The entire cycle, then, may run somewhat as follows: (alighting) *zee o, zee o* (ruffling of feathers); *zee o, zee o* (shifting on perch); *zee o, zee o* (feathers composed again—“She evidently isn’t here”); *hootititeet* (momentary pause—flight to neighboring stand).

The Leuco also indulges much *sotto voce* “slushy stuff” in the near presence of his lady love. If you see a Leuco come in from a hundred yard flight, light on a stone and begin to gush softly, it’s ten to one his lady is in hiding near by; and it’s three to one he knows exactly where she is.

Then there are scolding notes of various degrees of intensity, emotional rather than functional expressions; and there is a mellow *schthub* of inquiry, mellow and low, not often heard during the nesting season. Also a lighter, casual note of greeting, inquiry, or appraisal, *schthib*, or *schtlib*, matter-of-fact and unemotional. Lastly, there are hovering or flight notes which are distinctly melodious and very difficult to syllabize. If the Leuco is not a singer, he is by no means destitute of expression.

THE LEUCO NESTINGS OF 1922

By William Leon Dawson

The Sierran season of 1922 was marked by lingering snows, for the preceding winter had witnessed the heaviest snowfall in decades. It was not thought worth while, therefore, to repair to the Grand Cirque, where Leuco nesting was exclusively conducted, until the 30th of June. Even at that late date, the “Grand Moraine” was just beginning to emerge, while the Cirque Lake at its feet (alt. 11,000 feet) was completely ice-bound. In the course of twelve days’ intermittent residence I made, with the help of assistants in two instances, ten locations of Leucostictes’ nests. Two of these occupying, the one a deeply penetrating fissure in the mountain, and the other a niche under a protecting overhang, were practically inaccessible. Another, placed in the deep interior of a broad rock fissure, or “well,” accessible from above, held on the 11th of July four or five young a quarter grown. To each of the remaining nests a separate interest attaches; and I propose to describe them briefly, or at least the circumstances surrounding their investigation.

June 30, 1922; n/4, not taken:—As I was nearing the west member of the two overshadowing cliffs of the Grand Cirque, by means of a steep snow-field, a female Leuco, returning blithely from breakfast at 9 a. m., disappeared in a deep perpendicular crevice not a hundred feet away. Arrived at the base of the opening, I find a fissure which penetrates the mountain to a depth of fifteen feet, but which is too narrow to permit of entrance, even “edgewise”. The floor of this cavity is irregularly terraced, and upon one of these terraces, with

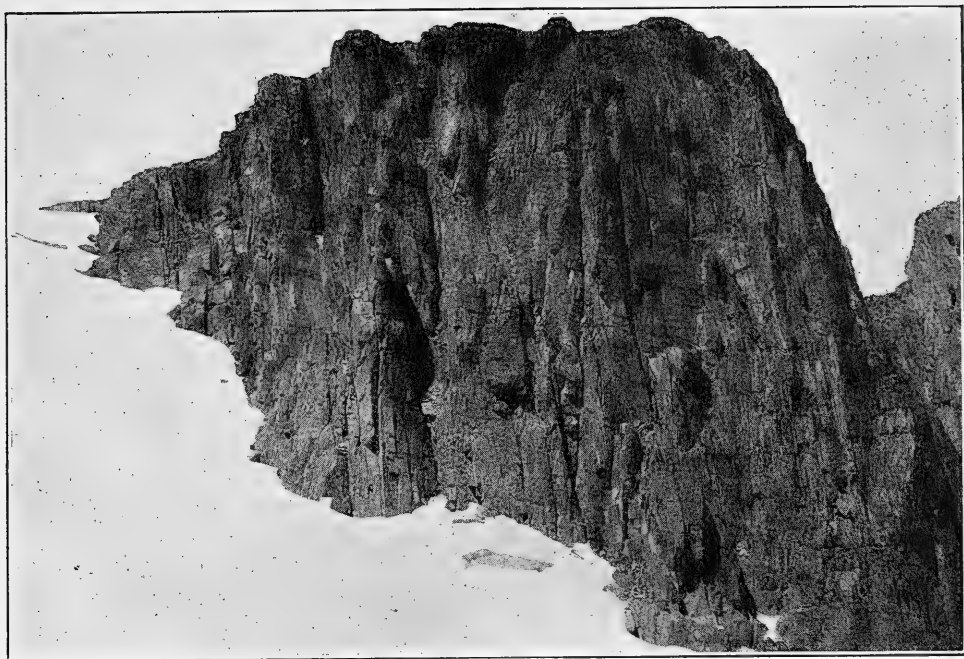
surface just out of sight, the bird, who, meantime, has flushed, settles again after repeated feints. A sort of roof fifteen feet up is formed by wedged rocks, which, in turn, hold much detritus. There is a chance that I may be able to remove this roof piecemeal, but there is a slab of granite poised midway, and inaccessibly, just under the roof, and which, sloping sharply toward the nesting terrace, is likely to shunt material carelessly dropped, in the direction of the eggs. Yet it may be worth a try.

For an hour I worked laboriously, removing this composite roof, and was rewarded, presently, by the sight of four gleaming white eggs. Further operation, however, confirmed the suspicion that the slanting slab was "doing me dirt". When at last I reached the slab and could remove it, the bird was seen devouring the remains of two broken eggs; while a third egg showed manifest tokens of damage by falling pebbles. Further effort, therefore, was abandoned.

Set 112/5-22, taken, with nest, July 8th:—A bird was repeatedly flushed from a steep and highly unstable north-facing boulder wall, which forms the crest of the Grand Moraine. I had not attached much importance to these occurrences at first, for the place is near a favorite resting-station and point of departure for *Leucos* en route to the cliffs; but this morning I approached the place watchfully, and got the exact point of emergence. The nest, which is composed of the drabest grasses, occupies a niche in sliding detritus, under cover of an angular block of granite, and at a point about a foot and a half in. The female is very solicitous, and has repeatedly passed within a foot of me to cover her eggs, and, even as I write, is pausing momentarily within two feet of my face. If she is disturbed upon the nest, she first withdraws into the deeper interstices of the rocks, leaving the eggs exposed; but when she returns she rushes out and flits around awhile, discontentedly, before trying to brood again. The mate hops about solicitously and chirps as often as the female shows herself; but when she is settled again upon her eggs, he immediately takes himself off and without further ado. Intrusive fragments of rock are such an essential portion of the nest-wall, that several are taken with it, while another sliding fragment, evidently functioning some days since, has dented one of the eggs.

Set 113/4-22, taken July 8th: On the morning of July 7th, while watching from the lower reaches of the Grand Moraine, I saw, among others, a bird approaching from the north, i. e., the direction of the more exposed feeding levels at a lower elevation, and saw her settle on the middle rocks of the moraine. Believing her to be a female returning from "breakfast", I applied the glasses (ten-power marine binoculars) and succeeded in following her very devious course over an immense distance. The bird, presently, rose and settled on the east end of the summit ridge of the moraine. Then she flew resolutely east across a great snowfield and settled on the black cliffs. Here she made several shifts, and was accosted, finally, by a male, to whom she paid not the slightest attention. Then she fed for a few moments on a sloping snow-field further to southward; then lifted and swung around to westward until she landed at the foot of the main cliffs immediately to the southward of the Grand Moraine and its intervening snowfield. Here she zigzagged across wide areas, alternately perching and rising. A male bird greeted her, as I deemed respectfully and with proprietary interest. Finally, she lighted on a rocky boss about midway of the cliff, at this point about 375 feet high, and about one-third of the way up a deep vertical fissure. Into this well she presently disappeared. This flight occurred at about 10 a. m., and I judged it to be the official return from breakfast.

In the late afternoon of the same day I was fortunate enough to be stationed upon the summit of a commanding outlier of rock immediately below this well, when a bird caught my attention as she hopped down from step to step of a single tier, or wedged column of boulders, which occupied a position in the throat of the well, about seventy feet up from the point in the wall, itself 125 feet up, where this well runs out. Arrived at the bottom, the bird launched forth in what I took to be the supper exit, since it occurred at 4:30 p. m. Since the bird was already in motion when I discovered her, I could not tell from what interior depths of the fissure (at this point some forty or fifty feet in horizontal depth)



EAST WALL, MAIN CLIFF, GRAND CIRQUE ALTITUDE 11,600 FEET

she might have come; yet the presumption was strongly in favor of the particular rock-group upon which she had been discovered.

At ten o'clock the next morning, viz., the 8th, being stationed again upon the Grand Moraine, I was fortunate enough to witness the breakfast return of what proved to be the same female. This time she rose from the west end of the Grand Moraine, threw a great circle in the air, then flew southwest to the lower wall of the west cliff. I had, naturally, no suspicion that this was "our" bird. Presently, however, she flew to the west wall of the East Cliff, thence east around "the Flatiron", the frontal and lowest member of the historic cliff, thence west again, with several zigzags and false motions, over the western face of the cliff. Not to be tedious—although to the novice this operation *is* tedious to the point of madness—I traced her, after many devious wanderings, to the significant boss by the east wall, and thence into the enveloping blackness. *This entire rigmarole of devious return is gone through with by the birds as an established device for throwing observant enemies off the scent.* The movements of birds of this species with reference to nest visits are studiously and laboriously irregular, and do actually discourage any but the most relentless observers. I doubt if the birds, even in this thrice-plundered locality, are at all conscious or resentful of the human presence, except at the very closest range. The aggravating cause is rather, I suppose, the Clark Nutcracker (*Nucifraga columbiana*) the obscene ogre who sometimes stalks these grim sanctuaries like a death angel.

Returning in the afternoon with Mrs. Dawson, who meanwhile had joined me at the upper camp, we sought the conveniences of the same watch tower. We had scarcely taken breath, after a stiff climb of a hundred feet, when I caught a bird in midair—apparently one that had emerged from the suspected well. Fastening attention thenceforth to the matter in hand, we had the satisfaction of seeing the female bird return and flash in, without preliminaries, just above the fourth boulder of the tower, or tier, already referred to. There was no emergence, and we knew we had our quarry sealed.

After discussing and rejecting the plan of approach from above by means of ropes, I addressed myself resolutely to the task of approaching from below. With garments reduced to a working minimum, and armed only with a pike,

I entered the fissure, which was at no point over two or three feet wide, and climbed up some thirty feet. In making so much progress I had to avail myself of every irregularity or niche in the wall which would support a toe or a pike-point, and I had to hug the projection of the "bottom", or innermost recess,—slimy, slithery, and dripping. At this point also I discovered that the prospective site consisted of a single tier of rocks wedged into the outer throat of the fissure, and that it would be perfectly possible to pass behind them, by dint of wedging and wriggling between sheer walls. Of this passage the least said the better.

The tier was seven or eight members deep, at no point over two feet wide and in part much narrower. The lodgment was fifty feet sheer from the next, or false, floor, and seventy feet from the bottom of the fissure. The outer walls flared suddenly, beyond the tower, so that not an atom of support could be secured from them. Fortunately, I found that the boulders themselves, *except the topmost*, were lodged with a fair degree of firmness. By dint of crawling over the pile from the inside, I could hope to cling outside and search. The bird emerged when I was half way over, and I saw the precise spot; but there was no hint of space to let, as seen from above. Finally, I descended the exterior face of the tier, rested a knee upon the slight projection beneath which the nest *must* be situated, grasped the uppermost rock, which was loose and which held only by the inertia of weight, and groped below for the nest. The courses below were undercut, so that I could get no help from them, not even for a toe-hold. I think I was never in a more strained or precarious situation. My life depended upon the integrity of that trifling lodgment of loose boulders, against which I was applying the leverage of my body. A slip meant fifty feet, as I proved presently by dropping my hat; and the impetus of a heavy body meant 150 feet more, as I also proved by the accidental dropping of a small stone, which dislodged the hat and sent it to the bottom of the cliff.

The nest, too, was amazingly concealed and difficult of access. I could only reach it by the flat of my hand held palm up. By the click of the nails, I surmised eggs; but try as I might I could not, at first, insert the fingers tips down. Finally, after arranging my little cotton-lined, pocket collecting-box, with lid open, upon the boulder above my head, and having detached an aluminum collecting spoon, I succeeded in removing a small stone, which gave me better access to the nest—although I could not remove the nest itself—and so began fishing for eggs. It was a case of eggng by faith, not by sight. As the first one came up, pearly pink, "as fresh as paint", my hand trembled menacingly. The landing of that first egg was a tremendous feat, and that of each succeeding egg more so. Although I held a steady thumb against the agitated oval as it quivered in its shallow tray, its progress was more a feat of jugglery than an affair of reason. Finally, when I had landed the fourth egg, with nerves which required nearly the full width of the well for staggering range, I abandoned the spoon and thought to take the fifth egg with my fingers. Full carefully, with every sense alert, I closed about it, first finger, thumb, second finger; then I lifted. "God!" the thing had collapsed in my trembling grasp as it was clearing the brim. "God!" I shouted in impotent horror. The good wife, clinging to a ledge below, thought I was swearing and made shocked protest. But it was neither that nor prayer—exactly; only the despairing cry of a tense soul which suddenly finds the ground snatched from under its feet—the ultimate and instinctive appeal to the Ultimate. And so I buried my face in the rocks and clung trembling—almost sobbing—till calmer moments and mastery came.

"Four out of five; well, that's as good as a set of four". So reasons the novice or the uninitiated; but your true oologist is unconsolable. "Four out of five! Yes; a beautiful face with one eye missing!"

Well, I stowed the trifling remainder away, after some fashion, and retrieved the nest, wrapping it flimsily and bestowing it in my hat, secured it with a safety pin, and dropped it—with consequences already recited. Needless to say, I ultimately retrieved the hat—and the nest—at the bottom of the cliff;—and if anybody wants that set, Dawson Leuco, n/4 of 5, at half price, exchange, he can have it.



DETAIL OF PASSAGE TO LAURIE'S PROSPECT. NOTE
"GLOMMER" IN HAND OF GILES E. DAWSON

G. E. D. IN WELL: SET 114/4-22 [Upper]
LEUCO APPROACHING NEST [Lower]

n/ ? ?, July 11th—not taken. This was known as "Laurie's prospect", for it was located by that otherwise enterprising young man on the 30th of June, during the few hours that he cared to spend at the dreadful "high line". He reported having seen a bird, presumably building, visit a fissure some 125 feet up, and near the top of the Flatiron, which is the northward and proximal aspect of the East Cliff. It was impossible to reach this spot from below, but by dint of working across the east face of the cliff and rounding the angle (shown in the accompanying photograph), I secured a commanding but delicate position above the bird and flushed her (albeit I did not know within fifty feet where to look), from four eggs. This was on the 7th of July, at which time I judged the nest, if fortunate, might be completed. Returning on the 8th with Mrs. Dawson (much protesting but heroic), I addressed myself to the task of recovery.

The entire situation was precarious in the extreme. A slanting snowbank, the only one which maintains itself on the cliff proper, occupies most of the great shoulder, or niche, having a slanting floor. The exposed lower portion of this niche floor is covered with the loosest of slide-rock, and a slip means 125 feet sheer—but not so sheer but that one would strike the foot of the cliff rather than the snow, at the bottom. Fortunately, the edge of the cliff is flanked at this point by a ledge at right angles, and this, although it afforded no reliable hand-holds, gave a necessary basis for reconnaissance.

The nest lies close up against the main wall upon the floor of a double crevice, formed by the springing away of a remarkable triangular pillar of granite. It is as though this tall pillar had warped rather than fallen away from the wall. The space between the pillar and wall is doubtfully sufficient to admit the human body, flatwise, while the curvature of the inner faces of the pillar leaves the nest four feet back from the verge of the upper wall. The tip of the pinnacle is about fifteen feet below the edge of the cliff, and the nest twelve feet further.

Lashing a double line to the pikes, set perpendicularly, and partly braced by a loose boulder, I cast off, and achieved, first the tip of the pillar, and then a full-length squeeze in the crevice. That was sufficient! I realized that further progress was madness, for even if I should attain the bottom of the fissure with my feet, I should find myself in a straight-jacket, and could not lower my hand toward the nest by six inches. As it was, I had great difficulty in scrambling out, even by means of the ropes, for the friction of the investing walls added materially to the exertion of lifting the sheer weight of the body. No; either that nest goes uncollected, or I shall have to return with some sort of grappling device.

I cannot refrain from again mentioning the heroism of my better half, who, in spite of a touch of mountain sickness and loss of meals the previous day, was willing to carry out this unexpected provision of the "for better or for worse" contract. With no foothold in particular, she "manned" the pikes somewhere between the snow and sky, and wished, no doubt devoutly, that her man had been made less enthusiastic.

For myself, the defeat only whetted my appetite. After elaborate preparations at the lower camp (at the 8000 foot level), I returned, July 11th, with my son Giles, prepared to do business. We had constructed a "glommer" of wood and steel, a sort of long-handled pitchfork, which was guaranteed to lift any nest within a range of thirteen feet. We filed up laboriously with pikes, ropes, glommer and camera—to be confronted by—chicks! There are times when even infants appear unlovely. But, of course, Laurie's "Prospect" was not a building prospect at all. The lad had simply seen the female return once or twice from food trips.

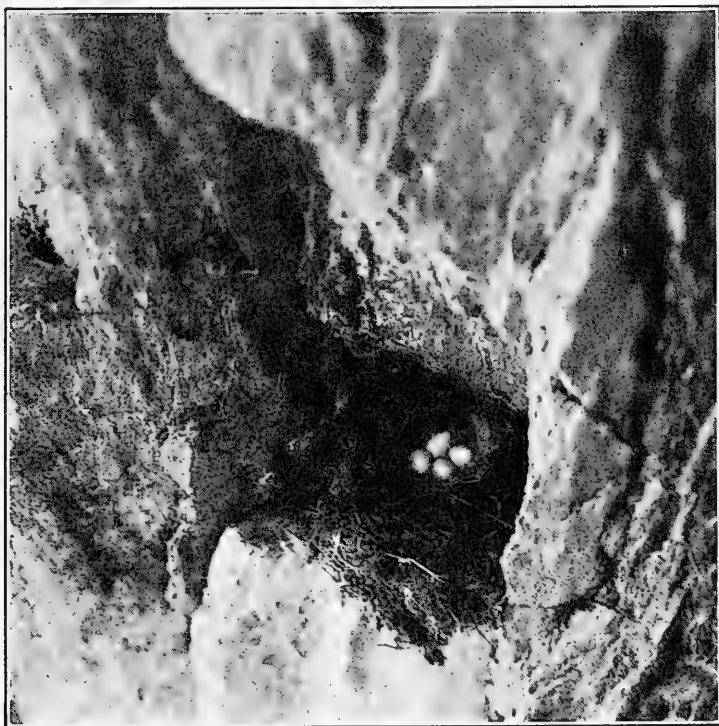
Set 114/4-22, taken July 11th:—Bobby Canterbury also made a "building location" on the immortal 30th of June; but the lad was over-bashful, and all he could tell us was that the bird had disappeared "somewhere" in a particularly rotten chimney at a point about fifteen feet above the snow.

Rather doubtfully, then, I returned on the 11th of July, and incited Giles to undertake the climb, while I stood out on the snow and watched developments. The lower part of this chimney, or fissure, was steep and oozy, while the upper two-thirds was choked with fallen boulders, exceedingly unstable in appearance, and a good deal "worse than perpendicular" in arrangement. A climb up this testy flue was not an alluring prospect, and I looked on with foreboding. But, fortunately, after the young man had negotiated the lowest member of the boulder pile, a bird burst out into his face,—very nearly sending him over backward in astonishment. By dint of groping in all possible crevices he soon located the nest, though not a vestige of it could be seen from the outside. I substituted promptly at this point, and while overhanging rocks leered and winked groggily, succeeded in digging out the nest, intact, with its treasure of four. The mother bird was only mildly interested in operations, and much preferred to spend the little vacation time sporting with her mate.

Set 115/5-22. Taken July 11th. On June 30th, the day we sketched in four of our Leuco prospects, I was retiring to camp about 10:30 a. m. along

the western face of the Grand Moraine, when signs of nesting activity induced me to stop. A female Leuco was making feverish trips to a spot midway of the very roughest boulder field, a hundred yards away. By dint of rushing from cover to cover during her periodic absences, I succeeded in approaching within thirty feet and marked her precise entrance. This bird obtained her nesting materials, chiefly weathered grasses of last year's vintage, from a rocky exposure at least a hundred yards away. Her hubby, meanwhile, had his hands quite full chasing off a dastardly rival who insisted upon urging his rejected and pointedly unwelcome claims.

Returning upon the 11th of July equipped with collecting tools and camera, I find the lady away and five fresh eggs awaiting her attention—and mine. I rigged up the camera, and the owner of the eggs returned presently; but she was not greatly exercised by my presence, and she insisted upon playing hide-and-seek among her rocks rather than upon scolding me roundly from some photographable eminence, as I had hoped. After half an hour of futile by-play



NEST OF SIERRA NEVADA ROSY FINCH, NO. 116/4-22, IN SITU.

in which I had not secured a single exposure, I shut up the photographic shop, and proceeded to gather the egg crop.

The nest lay beside, rather than under, a great boulder, being protected, instead, by minor and supporting boulders, and at a point about two feet in. I could barely discern the front of the nest from the outside, but after carefully tamping in cotton over the eggs, I removed the nest entire, with contents, being compelled, en route, to turn it upon its side in order to clear the narrow passage. Even this squeezed the nest somewhat; but the pearly beauties, five of them, blushing pinkly, arrived intact.

Set 116/4-22, taken July 14th:—A peculiar interest attaches to this nest from the fact that, in all probability, it is the product of the same pair of birds which we robbed in the same well three years before. Giles and I had located it on the 5th of July, when it stood ready for eggs. The previous nest, referred to in the preceding article, was the one of nearly all moss construction whose eggs

were chipped by falling detritus. We took extreme care on the occasion of this year's first visit, but pebbles would fall in spite of our best efforts, and it was a relief to find that this year's nest occupied a niche well out upon the upper, or hanging, wall of the well, and was, consequently, much less exposed to accidental bombardment.

On the 11th of July, having finished with "Laurie's prospect", and finding ourselves well started up the cliff, which is at this point about 425 feet high, my son and I conceived the notion of scaling the cliff outright, and of taking in this prospect on the way up. Don't ask us how we ever did it! There is no accounting for judgment when the blood is up. There is a cool stretch of that cliff, midway, a rock face of forty feet with a few endeared bosses, which I shall never recall again without horror—and pride. The nest, which we eventually passed—in much easier circumstances—contained only three eggs.

I had to return, then, single-handed, on the 14th, and armed with pike, rope, and a twenty pound camera. In all my experience of Leucos I had never been able to photograph a set of eggs. Even now the sun did not fall full upon the eggs, which, nevertheless, had to be "snapped" because of the impossibility of securing a base for a tripod. By dint of suspending the camera from a projecting rock above until I could descend to the nest level; and by dint of working out, camera in hand, and unsupported, between two opposing walls, I succeeded in firing down between braced legs, and secured several rather indifferent snap shots. This nest is quite the handsomest in our series by reason of its mossy content.

This has been, frankly, a record of personal adventure, rather than a study of nesting habits; yet it is by this blending of observation and effort that we acquire experience. Information may be acquired from books, but experience may be acquired only by effort. And when you think of it, you will not so much wonder that men are mad enough to seek a fragile egg shell at so heavy a cost, as you will wonder at yourself that you have not tasted—if you have not—the high wine of such adventure.

A LITTLE KNOWN AMERICAN BIRD

By the Rev. F. C. R. Jourdain, M. A., M. B. O. U., H. F. A. O. U.

While in Spitzbergen during the summer of 1921, one of the birds which we were always on the watch for was the Large-billed Puffin, *Fratercula arctica naumanni*. Not only did we want a series of skins, but we had also a very keen desire to find out something about its nesting habits; for the fact remains that up to 1921 no one had ever taken an egg of this form in Spitzbergen. Even the indefatigable Mr. A. C. Bent, when preparing the article on this race for his work on the "Life Histories of North American Diving Birds", could get measurements of only seven eggs, all apparently from Greenland. There is an element of uncertainty even about these, for the Puffin of Southern Greenland is the typical race, *F. arctica arctica*; and we do not know enough about the ornithology of west Greenland to say exactly what the limits of the two forms are. The Large-billed Puffin has also another notch to its credit, having been one of the few Spitzbergen breeding birds to defeat all the efforts of Professor Koenig and his party in 1907 and 1908; for the only Puffins' eggs obtained by him were those of *F. arctica arctica* from Bear Island. It was, therefore, with very great interest that we watched out big-nosed friends "scuttering" away from the sloop over the still waters of the Ice Fjord on a calm evening towards the end of June. Watching one of these birds come up ahead, and which upon finding the sloop unpleasantly near, half flutters, half runs along the surface of the water for fifty yards, flops down into the water again, and after one more look around, disappears under water,—it is hard to believe that it is the same bird which passes by with rapidly beating little wings, heading straight for some distant bird-cliff, and leaving our oil-driven boat standing. However, here were the birds; so the

next thing was, clearly, to ascertain where and when they bred. Though not present in great numbers, they could not be described as rare; and before long we managed to secure a few specimens on an island with steep rocky cliffs, perhaps twenty or thirty feet high, standing, in some places, back from the shore. Here the birds were sitting about the rocks and were, apparently, breeding on June 27th. In one case a bird was put out from a hollow in the face of the cliff, where there was a sort of apology for a nest,—no trace of a burrow, but a natural crevice in the rock; but no eggs rewarded our search; and the birds, when dissected out, did not appear to be yet in full breeding condition. Could they be late breeders, as Koenig surmised? Yet we had seen, eleven days earlier, the typical Puffin (*F. a. arctica*) with eggs at Bear Island; and it seemed strange that there should be such a discrepancy between the breeding dates of two such closely allied forms.

For some time after this we made no progress. We found the birds, it is true, in considerable numbers, apparently breeding high up in the precipitous rock faces of Vogel Hoek, on Prince Charles Foreland; but here they were safe enough from anything we could do. Time was slipping away. We were gradually diminishing our desiderata list to more moderate dimensions; but no success had been scored against the Puffins till the night of July 8th. At least our watches pointed to the fact that it was nearly midnight; and as matter of fact we had been at work on or on deck for about fifteen hours, but the air was still and calm and the sun was shining brightly, as we rowed quietly to the foot of Cloven Cliff. Overhead towered the great mass of fissured rock, and at its foot huge boulders and broken fragments, fallen from above; were jumbled in confusion. Picking our way between or over them, we flushed a good many Eiders from their warm nests, some containing recently hatched young and chipping eggs. Now and then a Snow Bunting would flutter out of some deep crevice between the boulders; but as the nests probably contained young, we wasted no time on them. High above us came the confused noise of hundreds of Brunnich's Murres, mingled with the high-pitched wailing notes of the Burgomaster Gulls from their eyries up aloft and the twittering notes of the Little Auk; and as we picked our way slowly up the side of the cliff, taking advantage of every available foot-hold and hand-hold, the noise grew louder and louder. We had left a little colony of Mandt's Guillemots with young in their nests down below us. While we peered into the holes, the old birds would come and perch within a few feet, eyeing us all the time with the greatest interest. But above us, silent and still, was a row of our big-billed friends, watching every movement with expressionless stares. Gradually we worked our way higher and higher, my companion (H. Paget Wilkes) leading the way, until at last we were close below where the Puffins still sat. Worming his way up a gully and testing every likely cranny as he went, he managed to reach three nests. Every one was in a natural cleft in the rock face, not very deep in, lined with quite a substantial nest of bents and a few feathers. Another nest was still empty. The birds sat on the rocks above the nests, as the Little Auks do, and so gave away the approximate site; but the difficulty consists in getting at them. Of these three eggs, one was very slightly incubated, the second about 7-10 days, while the third was considerably incubated. From our perch in a little recess in the face of the cliff, we could look down on the still water of the Sound below us, with the sloop looking like a child's toy. Each egg was inspected in turn before being carefully packed for the descent. By the time we got back to the boat it was about 5 a. m., and after some twenty hours of field work, we were both of us quite ready for a spell in our bunks.

About a week later we had occasion to drop a small party on the islands where we found this species established at the end of June. They set off about 8 a. m. on July 17th, and we left shortly after, arranging to call and pick them up about 5 p. m. The weather was then calm and fine, but in the afternoon a stiff breeze from the west sprang up without warning, and gradually freshened till our sloop could hardly make any headway against it. Quite a nasty sea had got up, and it was about 9:30 p. m. when we got under the lee of the islands and with some difficulty picked up our party. They had shot two Puffins and caught a third on its nest with one egg, at the same spot where we had put the bird out

on June 27th. The site was just like those already visited—a crevice in the perpendicular rock face, with the usual untidy bits of drift and a feather or two, which constitute a Puffin's idea of what a nest ought to be. The egg proved to be only slightly incubated, and was readily blown.

We had now four eggs, all very similar in size and not showing much variation, but in some cases with a few dark, almost inky spots, with soft edges,—suggesting an absorbent shell. The most interesting point about them, however, is their large size, averaging 67.27 x 45.87 mm. Twenty-six eggs of the typical race from Bear Island, Iceland, and the Murman coast, average 60.8 x 42.29 mm. Although there is a certain amount of overlapping in individual cases, averages of series of measured eggs confirm exactly the results obtained by the measurement of series of wings and beaks. This is, of course, only one out of many scores of similar cases, and in view of them it is difficult to see how any reasoning ornithologist can afford any longer to ignore the importance of oological characters. Up to the present the lack of reliable material, and the inability to make good use of what we have got, have been responsible for the general neglect of this most interesting branch of study.

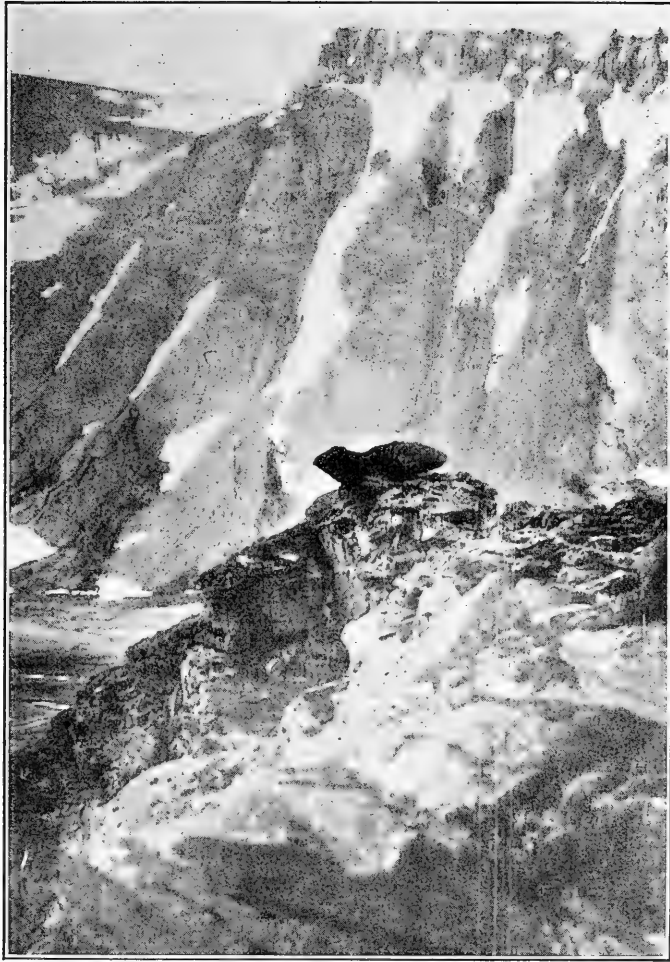
ON THE NESTING OF THE BARNACLE GOOSE IN SPITSBERGEN

A. H. Paget Wilkes, B. A., M. B. O. U.

Although infinitely more interesting, owing to the rarity of the species encountered and the complexity of their migratory movements and breeding problems, bird nesting in the high North is usually accompanied by more discomfort and inconvenience than days spent in some great gullery on the south coast of England or hunting for Warblers' nests among the leafy undergrowth of brake and wood on some warm day in June. The Oxford University Expedition to Spitsbergen was, however, singularly fortunate in selecting a year phenomenally free from ice and suitable in every way from the point of view of weather. Never shall I forget coming up from the forecabin of our 100-ton sloop, the "Terinngen" to catch my first view of Spitsbergen. It seemed as if the Alps had been transported to the Mediterranean, with their snowy slopes coming down to the water's edge and the serrated, blue and white paths of their glaciers cut short in tremendous ice-walls, sometimes as much as two hundred feet high; and above all the expansive blue of a sky without a cloud. As we entered Ice Fjord we saw the long island called Prince Charles' Foreland lying out to sea, where we found the Pink-footed Goose (*Anser brachyrhynchus*) breeding, with its marshes and peaks covered in snow. We took some time running up Ice Fjord to Advent Bay where we arrived late in the evening.

It was in one of the valleys debouching on this bay that Koenig found the Barnacle Goose (*Branta leucopsis*) breeding in 1907 and 1908. During the expeditions of these two years he obtained three nests, containing clutches of five, four and three eggs respectively. We were fortunate in obtaining no less than five nests, containing c/5 c/5 c/5 c/4 c/3, 22 eggs in all. Manniche met with this species breeding in N. E. Greenland on the face of a great inland cliff, but obtained no eggs or information regarding its nidification.

As soon as we arrived, Messrs. Jourdain, Gordon and myself started out. After walking along the flat for a certain distance we found ourselves in a long valley with steep mountain-sides on which the snow still lay about in great patches. A snow-stream ran down the centre and filled the lower level of the valley. The slopes on either side consisted of big boulders which had come down from the rocky bastions and towering cliffs above us, the bastions forming a ridge along the valley. It was here that we looked with care and eagerness. Walking on near the stream, we were soon delighted to see a pair of Barnacle Geese fly out from the mountain-side. They flew round us somewhat excitedly and finally pitched into some rocks about half a mile further on. Though we could



NESTING HAUNT OF THE BARNACLE GOOSE IN SPITSBERGEN

not see the exact spot, this gave us a valuable clue, and it was encouraging to see the birds on their old breeding ground. After further progress Mr. Jourdain stopped, and, scanning the bastions with his glasses, detected the white patch on the side of the head of a sitting goose. Owing to our plans, Messrs. Jourdain and Gordon had to return to the sloop and I went on to try and obtain some eggs single handed. Keeping my eye on the bastion we had noted, I scrambled up the screes and boulder-strewn side of the valley, and on drawing nearer, saw the goose quite distinctly, sitting on its nest, with the gander standing on guard. After a stiff bit of climbing I found myself within 50 yards of the pair and stopped a moment to notice the beauty of the plumage and characteristic actions. The steel-grey and black feathers of this handsome brant were truly remarkable, at close quarters, standing out against the dull-coloured rock; but perhaps its most distinctive point is the white cheek-patch which gives it the name '*leucopsis*.' Another steep 'pitch' of rocks and I was on the bastion. In a second or two the gander was off, flying away with his deep double-syllabled cry and the remarkable creaking of wings characteristic of the geese.

The next moment the goose, which had been sitting upright on her eggs, stretched out her neck to its fullest extent on the ground and lay motionless. I stood some twenty paces from her. Then, as I advanced, she got up and flew off. Both birds circled round, with creaking wings and deep cries, and finally

settled on a neighboring bastion some hundred yards away. The nest lay under the lee of the upright pile of stones shown in the illustration on the edge of the bastion, and consisted of a hollow in the soil liberally lined with light-coloured down and containing 5 eggs. A large amount of hard, dried excrement was mixed with the down and the hollow had evidently been used for several seasons, since the remains of old nests were seen below the top layer of down. The eggs are small for the size of the bird, and in colour and texture do not vary much from those of the Brent Goose (*Branta bernicla*). These eggs were highly incubated, probably for as long a period as 20 days.

After carefully packing up eggs and down, I was about to descend into the valley again, when I saw two geese on the next bastion, about 100 yards away. The pair whose nest was at my feet were on the wing. I scrambled round to the next bastion as quickly as possible and on the way both birds got up. Climbing out on to the bastion, I saw another nest with four eggs in a very similar position to the first, out on the point of the rock, on a space some 15 square feet in area, with a sheer drop on three sides. Having no other receptacle I was forced to pack this second clutch in my pocket, with the down, and so began an anxious journey into the valley and back to the sloop.

This species chooses some curious nesting sites. One goose came from a small cave in an overhung cliff, while some days later we saw a goose sitting on the summit of a mushroom-shaped pinnacle at the top of a high cliff wall. Ice Fjord seems to be the headquarters of this bird as a breeding species in Spitsbergen but there is a certain amount of evidence as to its nesting in other districts of the Archipelago.

Mr. Jourdain's measurements of eggs taken by Koenig and ourselves are as follows:—

Average: 76.3 x 49.8 mm.

Maxima: 82.7 x 46.4 mm. and 76.6 x 52.7 mm.

Minima: 70.6 x 50 mm. and 82.7 x 46.4 mm.

SOME SOUTH AFRICAN REPEATERS

By H. W. James

Apropos of the editorial claim advanced last year, viz., that birds when robbed of their nest immediately set about building another, I wish to offer the following evidence secured upon or near the Maldwyn Estate Irrigation Farms, Klipkraal, Tarkastad, Cape Province, Union of South Africa. In recording these observations, it is needless to say that the repeated robbing of nests was deliberately experimental and not either casual or customary. In the course of many years' collecting, I have so often been accused of being a means of destroying bird life, that it seemed very much worth while to know definitely to what lengths a bird will go in laying after it has repeatedly lost its eggs. While the experiments are by no means exhaustive, they unquestionably tend to support the editorial claim, and to prove that scientific egg collecting is a factor which in no wise affects the increase or decrease of bird life.

1. *Riparia fuligula*, The Rock Martin. A pair of this species built a nest against the door frame of an outbuilding adjacent to my dwelling house. They were the only pair within two miles so that there is no doubt about the eggs being all from one pair. On Oct. 27th, I took three eggs from the nest; on Nov. 9th, another three; on Dec. 7th, another three; on Jan. 8th, another three, after which the bird hatched three chicks.

2. *Cerchneis rupicola*, South African Kestrel. The nest from which the first three clutches were taken was an old Sparrow's nest in a prickly-pear bush. The nest had been trodden flat. This was the only pair of Kestrels in this vicinity. The first clutch of four was taken on Sept. 25th; on Oct. 5th, I took another of four; on Oct. 16th, another of four; and on Nov. 5th another of four. The last clutch was laid on the ground under a prickly-pear bush about 10 yards from the bush from which the other three clutches were taken. As I was unable to visit the locality again, I do not know what happened after the last clutch was taken.

3. *Cerchneis rupicoloides*, Larger African Kestrel. On Oct. 3rd, I took a clutch of three eggs from a hole in the river bank. On Oct. 31st, I took another clutch of four from the same hole; on Nov. 29th, I took another clutch of four from a hole in the same bank but about 40 yards from the first hole. This pair of Kestrels have inhabited the same spot for several years and there are no other pairs anywhere near that spot.

4. *Strix flammea maculata*, Barn Owl. On April 19th, I took a clutch of seven much incubated eggs from the deserted nest of a Hammerkop (*Scopus umbretta*); on September 10th, another clutch of five from the same nest, and on Oct. 3rd, another clutch of seven, after which the Owl reared a brood of young, but I do not know how many.

5. *Pelcinius zeylonus*, Babbakiri Shrike. On Oct. 26th, I took a full clutch of three eggs from a nest in an Agave hedge; on Nov. 14th, I took another clutch of three from another nest in the same hedge; and toward the end of December, found another nest in same hedge, containing three young. This Shrike is very uncommon in this neighborhood. The Agave hedge is near my house, and as the house is built on a huge flat—there being no other trees or bushes anywhere near here—I am certain it was the same pair of birds.

6. *Elanus caeruleus*, The Black-shouldered Kite. In a small patch of thorn trees on the river bank, about two miles from my house, I found, on Nov. 4th, a nest of this Kite containing three eggs, which I took; on Jan. 20th, in a tree near the one from which the first eggs were taken, I found another nest containing three eggs, which I again took; and on March 25th, found another nest containing four eggs in a new tree near the other two. The birds then left this spot and built a nest in a large pear tree in my orchard, and this nest on April 10th, contained four eggs. This is the only pair of Black-shouldered Kites to be seen for miles round here.

7. *Scopus umbretta*, The Hammerkop. The nest from which I took the three clutches of Owl's eggs was the year before occupied by the rightful owners. On Aug. 21st, I took a clutch of much incubated eggs; and on Sep. 21st, another clutch of seven. After that the birds reared some chicks in the same nest; but I do not know how many, as I was unable to visit the place, but a friend told me about the chicks.

With the exception of the Owl, all the above birds were isolated pairs, so that there is no doubt that the same bird laid the eggs referred to. With reference to the Owl, it is hardly likely that another pair would use the nest, as they would all be nesting at the same time.

I think the above evidence is enough to convince anyone who wants to be convinced, that birds will always commence nesting again soon after losing their first nests, and it is generally the case that the second nest is left alone or not discovered.

A NEW BREEDING RECORD FOR CALIFORNIA

By William Leon Dawson

The heavy snows of the past winter, the deepest in decades, convinced us that there was no need for haste. So as we skirted, on the sixth day of June, the eastern bases of the Sierra Mountains enroute to Mammoth Camp, we accepted the challenge of a Yellow-headed Blackbird sounding from a wayside swamp, and we deployed for investigation. The place was Long Valley, a well-watered plateau in southern Mono County, and the altitude was something over 7000 feet. I had passed the swamp unheeding a dozen times before, in previous seasons; but one of my assistants, Lawrence Stevens, had never seen a Yellow-head's nest, and was curious. A broad stretch of shallow water, say quarter of a mile wide and a mile long, is here fed by mountain springs, and bears a complete investiture of rank grasses or dwarf sedges, save where, centrally, it supports low beds of tules, or irrupts in pools so charged with mineral content that vegetation

will not grow. Cattle trample the edges in droves, but apparently avoid the central portion of the swamp because of its treacherous nature.

On the way in we found a belated nest of Cinnamon Teal, n/9, and in a central tule patch a solitary nest, n/4, of the Yellow-headed Blackbird. Wilson Phalaropes were hooting at us; and persistent search for eggs of this species yielded such good returns that we decided to return to our abandoned camp for lunch, and to put in the afternoon with a drag rope. Accordingly, we re-entered the swamp at two o'clock. Stevens and our old-time mascot, Robert Canterbury (now 19) manned the rope; while I floundered along behind marking the rare irruptions of startled nesters. A nest of the Savannah Sparrow, n/5, with fresh eggs, very light in coloration, was the first find; and a Sora Rail's nest with only two eggs, apparently incubated, the second.

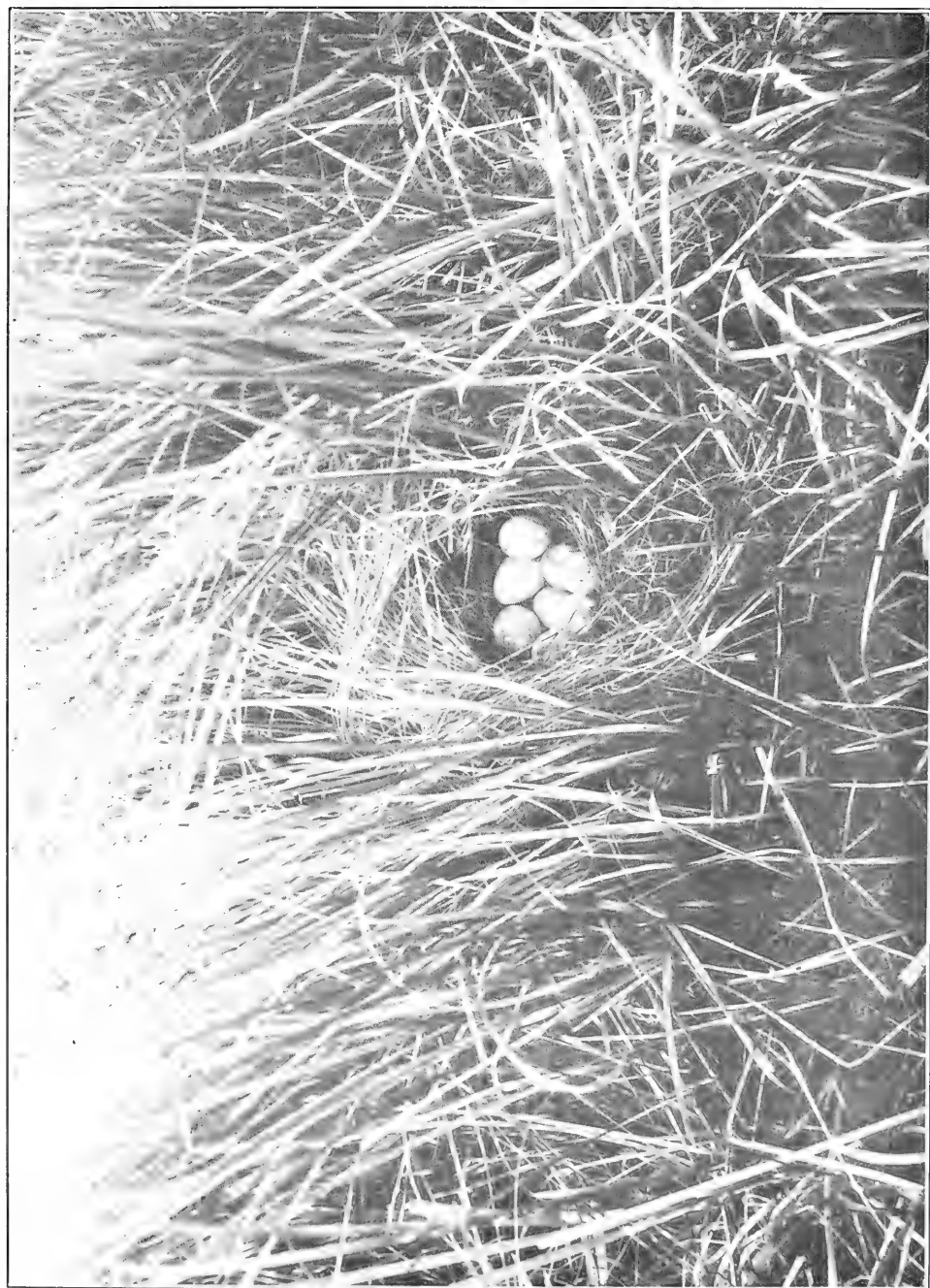
We were dragging a rather thin stretch of marsh grass when a Jack Snipe flushed and I called Stevens to my assistance, leaving Bobby, who was more remote, standing listlessly by his rope-end. Returning from a fruitless quest, we were about to resume operations when Bobby exclaimed "Well, look at this!" He had been standing all the while within three feet of a low-lying cushion which held, in a compact and perfect circle, eight fresh eggs. The cover of marsh grass was scanty, not over eighteen inches high, and the water shallow—an inch or so; yet there was no trace of a bird about. The eggs were "different"—no doubt of that; much smaller than those of a Sora, which we had, fortunately, just examined; of a dark, old-ivory-color, heavily sprinkled, almost capped at the larger end, with rich reddish brown spots. The nest itself was non-committal, a well-rounded and rather deep bowl of coiled grasses, three and a half inches across by two in depth inside, built up to a height of three inches clear of the water. Notably, there was present a leaning and overshadowing wisp of dead grass. I considered the exhibit long and carefully, too sobered, for once, to render snap-judgment. The boys became impatient and pressed for an expression of opinion. Finally, I said, "Well, boys, to the best of my knowledge and belief, these are eggs of the Yellow Rail, (*Coturnicops noveboracensis*) the first breeding record for California, and the first set ever taken west of the Rocky Mountains."

We left the eggs undisturbed and tagged the spot with cotton tufts. Returning ten minutes later, I found no bird. Returning again after half an hour and stooping over the nest attentively, I saw that one of the eggs had been moved, pried over on top of the others. Then the bird's nerves gave way, and she flushed from a spot two feet beyond the nest and not over five feet from my face. I watched her keenly, as with feeble, vacillating flight she passed at a height of two or three feet above the sedge tops, and plumped down some seventy-five feet away. The bird was unmistakably smaller and otherwise different from the Sora, which we had recently observed, also in flight. I got no impression of yellow; but since the flight of the bird was quartering against the sun, that is not surprising.

Although we spent another day in the swamp, we saw no further trace of Yellow Rails, unless a nest "ready for eggs," discovered by the boys but unseen by me, belonged to this species.

Compared in the cabinet with a set, n/8, of Yellow Rail's eggs taken last year by Rev. P. B. Peabody, there can be no possible doubt of the correct identity of these Long Valley specimens. I quite agree with Mr. Peabody that they are absolutely unlike the eggs of any other American species. The eggs were slightly incubated, and the albumen was so stiff that it was rather difficult of removal. The set, R110/8-22, averages mm28.8x20.4 in dimensions, and the ground color is a trifle darker than that of the North Dakota specimens.

One cannot forbear to remark, in passing, that the hospitality of California appears to be unbounded. Certainly its limits have not yet been reached. And so far as the Yellow Rail, is concerned, I predict that this set will prove to be only the first of a considerable series which the enthusiasm of collectors will bring to light in California. But let no one suppose on that account that the eggs of the Yellow Rail will ever be commonplace.



"THE COSIEST POSSIBLE NEST OF A YELLOW RAIL."

HAUNTS AND BREEDING HABITS OF THE YELLOW RAIL

Colurnicops noveboracensis

By Rev. P. B. Peabody, Blue Rapids, Kansas

With Photos by the Author.

Foreword by the Editor: Mr. Peabody is undoubtedly the highest, as he is almost the exclusive authority upon the nesting habits of the Yellow Rail. His unexampled devotion to the quest of this rare and elusive species is one of the outstanding romances of oology. He is good for twenty years more of it; and if ever his spirit is permitted to return, some decades hence, it will undoubtedly be to haunt the marshes of North Dakota in Yellow Rail time.

Our previous knowledge of the nesting of the Yellow Rail appears to be limited to four published references: the first, by Coues (*Birds of the Northwest*, 1874, p. 539), to a set of six eggs taken May 17, 1863, at Winnebago, in extreme northern Illinois. These eggs, undoubtedly authentic, were placed in the National Museum collection at Washington. The second reference is in O. W. Knight's work on "*The Birds of Maine*" (1908), where he says simply (p. 143), "Mr. Boardman found it nesting in Washington County, the nest being placed on the ground in marshes in similar situations to that of the Sora." The third account by Norman A. Wood, M. M. C. O., (*Auk*, Vol. XXVI, Jan. 1909, p. 3) records, upon the authority of Prof. Walter B. Barrows, a set of four eggs taken May 29, 1894, near Petersburg, Michigan, by a collector for Mr. Jerome Trombley. "The situation was in a large cranberry marsh, and the nest was fastened to the tops of the long marsh grass, the bottom resting on, or just reaching, the water. It was composed entirely of marsh grass". Mr. Trombley adds, "From the size and appearance of both the bird and the eggs, the evidence is fairly conclusive, although it is not absolutely certain, that the bird was a Yellow Rail." The fourth report comes from one A. S. Peters, writing in "*The Oologist*", Feb. 1918, of a wet nest of loose construction and with little attempt at concealment, found in a swamp of southern Minnesota; but Mr. Peabody professes to find this account unsatisfactory.

It is noteworthy that no authentic nesting records of the Yellow Rail have come to us from British Columbia, although the birds are of undoubted occurrence and locally common during the breeding season from eastern Ontario to Alberta, and north at least to York Factory on the western shore of Hudson Bay. The characterization of its range by the A. O. U. Committee (*Check-List*, 1910) as "Chiefly eastern North America", is not borne out by recent records; and its occasional abundance in winter upon the San Francisco Bay Marshes, as revealed by exceptionally high tides, established a presumption that the Yellow Rail is merely one of the over-looked species of our western interior. [Correct; See article on page 31—Ed.]

Full twenty years ago, upon a willowy meadow waste whereon a little water stood, in the Red River region of far northwestern Minnesota, I heard one June day many strange clicking noises previously unknown. These were dismissed from mind as being probably attributable to frogs. One winter's day in 1899 a fine young protege (who has withheld his name from this account) wrote me that he had heard during the previous June, amid the mazes of a long coulee-meadow in central North Dakota, a series of strange noises. Convinced that these were of bird origin, he sought for nests. Two such he found,—a discovery made in each case by the setting of a number nine boot squarely upon the eggs! Two units, however, escaped the fate of the other seventeen; and—might he send me these for identification? These eggs proved to be those of the Yellow Rail, rarest of the eggs of North American breeding water-birds.

In early June of a following year, 1901, I made my way across the unlinked area of rolling upland prairie, precipitous ravine, and venerable butte, which lies to the west of Devil's Lake. My destination reached, I hastened across some acres of "hog-wallow"; on over still wider areas of virgin prairie, whereon disported and sang many a blithesome Longspur; and stood at last atop a great butte, looking down upon that deep-lying sea of sedges, rushes, and grasses, known locally as "The Big Coulee." In and out it wound among the hills. Far to the northwest glistened a lake well girt with oak, ash, and aspen. Here and there along the western borders of the coulee lay tiny lagoons, fed by hidden springs and studded with cat-tail flags. Far out upon the open meadow were little "mottes" of willow, rose, and aspen. It was a most animated scene. Out among the cat-tails resounded the weird, not unmusical *Ou-gl'-ee-ay-ay-ay-dl* of the Yellow-headed Blackbird. Whilomly outrang the trumpeting call of the Pied-billed Grebe. The rustic pipe of Prairie Marsh Wrens, nesting among the cat-tails, added the cheer of unrhythmic chatter to the prevailing symphony. Soft undertones of other bird-songs enriched the music of the meadows. Here

and there appeared bright reaches of water whereon were sailing male Ruddy drakes, their mates the while brooding eggs amid the rushes. A dignified Mallard drake or two, with perhaps a lordly Pintail, might be seen moving about among the smaller fry of water-fowl.

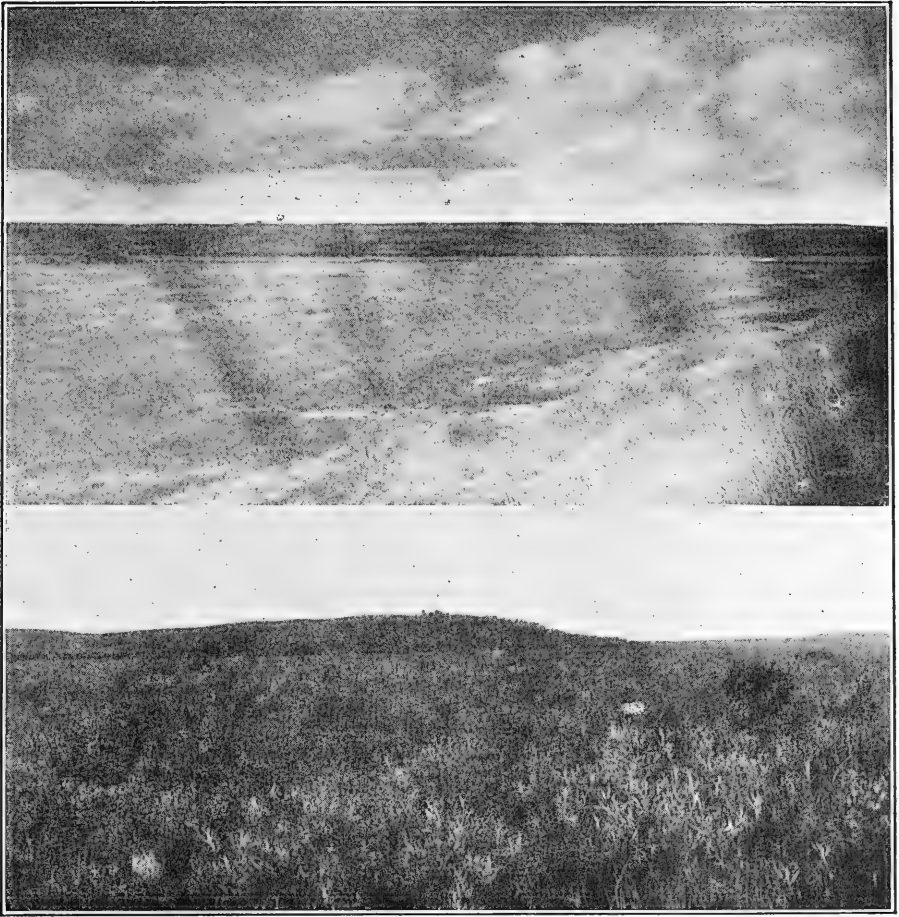
One must give reasons why this bed of an ancient river should have been chosen as a summer home by that rarest of inland water-birds, the Yellow Rail. The winding coulee, deep-set among the hills, is reached by steep ravines. These are clothed with partridge-berry, rose, willow, aspen, and the silver-leaved buffalo-berry. Rarely on these ravine sides are found huge boulders of yellow sandstone, under the edges of which at times a Turkey Vulture may place her eggs; and often beside them are nests of the Ferruginous Rough-leg. On top of the morainic buttes are scattered granite boulders of varied colors, all enriched by wonderfully varied lichens. Amid all these boulders blossomed vetches, cone-flowers, and puccoons, in glowing tapestries. Here, in this most radiant setting, was the paradisiac home of the Yellow Rails.

Varied was the bird-life of those buttes, ravines, and meadows. A great Pinnated Grouse might, perchance, burst upward from her newly scratched nest among the vetches, hurtling away with a startled, *Whuck-whuck-whuck*. A pair of Marsh Hawks might softly wheel and whirl, the female fretfully iterating her imperious *Kee-up, kee-up, kee-up*, for there were young in a nest somewhere below. Meadowlarks and Longspurs were everywhere. One might even catch the far sound of the thin call of some Western Grasshopper Sparrow; or the hoarse, measured *Da-a-a-de, da-a-a-de* of a Clay-colored Sparrow. From far up and out among the levels came, in mellow cadence, the *Zheese-sur-sur-ree-ee-ee* or the delightful *Tz-heaths-ur-r-r-r* of the Baird Sparrow. Anon a shadow of tawny wings might come floating across the meadows, and a cornet-like *Dewy-will, dewy-will* echoes from a passing Marbled Godwit. Or, maybe, there appears a flashing of white-and-gray wings accompanied by the inspiring *Ter-wheel-wheel-rit* of a rollicking Western Willet.

The faunal conditions in the coulee itself were rarely-fine for the Yellow Rails. Everywhere were wide areas of salt-grass, alive with appetizing snails. There were great expanses of soft, fine grass, unburned and unmown year by year. Better still, as will appear later, there were great expanses of soft, fine grass that were annually mown, leaving in spots just the sort of matted flotsam that the Yellow Rail so dearly loves for its nesting.

Were space available, one might chronicle here some of the marked faunal changes in that region during the last twenty years. There have been delightful incursions of bird-life: Alder Flycatchers have begun to build in the choke-cherry copses; the Clay-colored Sparrow, no lover of civilization, has become locally common; the Baird Sparrow is increasing; the Lark Bunting, always erratic, seems to be pushing out into new domains. And just once, in later years, did I discover, one morning, a male Sandhill Crane out on the meadow-margin, with head aslant and body on the qui-vive, watching over his mate, whose nest lay somewhere among the rank herbage in the lagoons. But with the aquatic fowl, there has been sad diminution, due to the barbarousness of pot-hunting in egg-time. Of ducks the Mallard and Blue-winged Teal alone are holding their own. The Wilson Phalarope is lessening. But the Sharp-tailed Grouse (*P. campestris*) still maintains its old-time abundance; as also do the Pinnated Grouse and the Short-eared Owl. Nevada Savannah Sparrows are strangely rare. But among the very shy creatures of that region there is one bird species that still maintains its right of eminent domain over the coarse meadow grass. The Nelson Sparrow still rises out of grassy depths during days of June, hovers long in midair, and utters there its bronchitic *Kr-ee-ee-ee-zhl*, quite as if the very life were being squeezed out of its ecstatic little body!

One unusual condition has, I am sure, determined the fitness of the "Big Coulee" as a breeding place for the Yellow Rail. Far up on the top of a butte, rising out of a boggy spring pool, there flows a tiny stream of clear, sweet water. Down the slopes the streamlet flows, now losing itself to view amid



THE BIG COULEE
YELLOW RAIL GROUND AT PLEASANT LAKE

lush grasses, and, again, pouring itself with noisy babbling over some buried boulder. Across the reach of narrow, coarse-grass meadow it quietly flows among the cowslips and sedges. Onward it meanders into the coulee; here it enlarges by intake; then spreads wideningly and sluggishly into the broader expanses. Now there appears a stretch or two of clean sand amid the alluvial muck. Onward, at last, the stiller waters flow, out into one of the lagoons. No one element of that wonderful coulee is more delightful than this little stream of clear, cool water. And right here, throughout many of the years of my observation, has been the focal point of the nesting domain of the Yellow Rail in that famous Coulee. Nowhere else in all that region, during many years, was the Yellow Rail every found.

One may well contrast this coulee with another breeding ground, some fifty miles to the north. A meandering lake lies deep among the hills. One approaches the place across great stretches of field, prairie, and upland meadow. As the train strikes the down grade, great masses of tree verdure burst into view. Far down to the very water level grows the heavy timber, skirted by a wealth of swamp plant life. Amid the lowest bogs of this swamp there still appear the bones of bison, bespeaking former slaughter of the artless creatures by Indians as the beasts came down to drink. Most interestingly did one find, in this remote bird paradise, marked compressions of bird-life: Kingbirds, both *tyrannis* and *verticalis*, were found, with Yellow Warblers, Redstarts, and

Alder Flycatchers. There, also,—rare delight!—were Willow Thrushes. Mazes of quill-reed margined the borders of the lake. Willow thickets of great density crept out into the open meadows. Amid the quill-reeds there winged and squawked a fair bevy of Night Herons. A fidgety pair of Marsh Hawks betrayed their nesting place.

As I passed by all this one day in early June, lone Mallard drakes kept rising from their snailing right at my very feet. Amid isolated clumps of willow I roused them ever and again. As I finally emerged from the crowded willow copses, I entered a wide expanse of coarse-grass bog, scatteringly set with clumps of dwarf willow and Labrador tea. And right here the expectant ear suddenly caught the far-away, measured *Tick-tick, tick-tick-tick* of male Yellow Rails, amid the wilderness of quaking bog. Elusive enough is the Yellow Rail. Just once on this meadow on my first visit, there rose from before me the white-spotted body of a Yellow Rail. (I had cautiously moved nearer and nearer to the spot whence came the uncanny sound of his clicking, and now felt *sure* of a nest beneath the luxuriant grasses. But there was nothing there).

And so, during the earlier years, my quest became centered upon the Big Coulee. Here I was invariably successful; although, indeed, only twice during fifteen years did I ever find more than a single nest in any one season.

The reader may wonder how a search involving five acres of ground, yet, at the utmost, with not over four or five local pairs of the Yellow Rail, could yet have been so widely successful. This wonder must increase when one goes on to tell how masterfully cunning is the concealment of every nest of the Yellow Rail. These birds are intensely local of habit. They are also, and especially during cloudy afternoons and at night, incessantly vocal. They are also notably fearless, where covert is dense. Never more than thrice have I flushed a Rail of this species where the covert was heavy; yet I have often sprung them from amid scanty growths of dwarf-rush or short-grass. Thus, the trained observer learns to search the meadow reaches with every sense alert. He finds that the male Yellow Rails appear to click their nuptial castanets always within restricted areas near the nest. Here one may sometimes actually glimpse them, only two feet or so away, amid the sedges.

Right here one should emphasize the marvelous acoustic of the clicking of the Yellow Rail. When heard at a fair distance it seems decidedly non-resonant; but when one listens only a few feet away, this sound has all of the hollow, throaty quality so characteristic of the Virginia Rail. This note may be almost perfectly imitated by tapping a hollow beef-bone with a bit of iron. The usual rhythmic form of the call is, --, ---/--, ---/--, ---, etc. Thus, the ordinary motif is in double time, with triplets in the second measures. These iterations are very uniform, though with occasional variations. Now and then a male may break into quadruplets toward the end of his half-minute series; while an occasional bird may break the rhythm altogether. But the sound of this clicking carries far. More than once, after toiling the meadow reaches until after dusk, have I set out for my own roosting place a mile away, only to stop, on renewed occasion, to listen to my Yellow Rails. With a keen wind blowing in the opposite direction, I have distinctly heard the calls, not only from the butte crest, two hundred feet above the meadow, but from the prairie, a full quarter-mile away. In speaking of these evening calls, one is led to broach a theory, namely, that Yellow Rails are quite nocturnal. This theory once became clinched for me through a fairly uncanny experience (to be detailed further on). A Yellow Rail cache (there was no real nest) contained at nightfall five eggs. At 3.30 next morning there were six!

Inevitably, with so fugitive a bird, even twelve seasons of close observation could give one but a modicum of knowledge. Certain facts are, however, well established. The males of this species appear to lose the vocal element of their nuptial ardor as incubation advances. Likewise, the females, which are so prone to sneak from their nests at some distance, under human approach, are then likely to cling more closely to their eggs; and at such times are even flushable therefrom.

The generic habit of skulking seems habitual with the Yellow Rail. I have spoken of uncovering these birds at a couple of feet, only to have them slowly dodge away without flying. Just once did I experience a quite contrary happening. A Yellow Rail ran out from dense grasses (it was not flushed), swiftly crossed a broad expanse of smooth, prone, dead grass, stood still for a moment in statuesque pose, some fifty feet away, before diving into the grassy sea. And yet with this Rail the habit of *running* instead of flying seems persistent; and one falls to wondering how many thousand generations of experience in hiding from marauding hawks and diurnal owls were required to bring about a habit so precisely duplicated in the almost incredible cunning of the nest-placing. One fairly shrinks from recounting the results of the observations growing out of this habit of skulking, so incredible are the things I have to tell. But one



"SPOTS—CONFINED ENTIRELY TO THE APEX"

must hew to the line in recounting experiences which have, I honestly believe, been duplicated by nobody else on earth.

The first-found nests of the Yellow Rail on the Big Coulee were all of them placed among coarse grasses. In such cover, then, did I first seek. It is amusing to recall how, although repeatedly warned that one should work his way through the meadow growth with care, lest he crush precious eggs, I should still, near the close of the first day's search, and weary with the unusual exertion, have allowed my feet to drag a bit. Then, just at the despair point, I happened to see an egg lying on a bare spot. Stooping to pick it up, I saw that it was what I had been seeking. Assured that a nest was near at hand, I faced about,—only to find that the toe of my boot had drawn away the canopy from the cosiest possible nest of a Yellow Rail!

In this case, it was plain that the nest-canopy was incidental. It was just a mat of dead and partly prone grass, perhaps somewhat moulded by the

Rail as her nest-making went on. Of this character were most of the nest-canopies afterward found, in whatsoever sort of matrix the nest proper may have been placed. And yet, the coarse-grass *locus* is hardly the norm. Of two distinct types of nest-matrix appearing (with water of the same depth in both), I have found the fine-grass type to have been the prevailing one. My second nest, found next morning, was the only one of the entire series in which there has been any evidence of a built-in canopy. This nest was in a fine-grass area, some rods from the former, amid rather scanty grasses. Water was of about the usual depth favored,—four inches. The canopy was very slight and the surrounding herbage quite thin. Only two other nests that I now recall were so poorly hidden. In every other case, all nests have been utterly concealed, there being no trace whatever of any artificial moulding of the standing or the prone herbage. Herein lies the supreme cunning of Yellow Rails. In the majority of cases noted, then, the nesting sites of this Rail have been where the hay-rake of the previous year has dropped a small wisp of hay. This fact has led to success in the nest-finding, when once the trick has been learned. One had only to traverse the clean-mown areas and examine every likely wisp of dead grass; and ultimately the nest would be found. Under some *one* of such, and that, usually, the most unlikely one of a hundred or more, would be the place where has lurked a most neat and elaborate nest. The most wonderful fabric of all was found, one June, years ago, after both skill and insight had become evolved. Amid coarse-grass bogs, a hundred feet and over from the spring-stream, there stood one bog, a bit apart from the rest. The water about it was rather deep. On top of this grass-tussock was a bit of the dead grass of the previous year. This I tore away, finding beneath a nest of unusual perfection. It was of the usual diameter—about five inches—but thicker—an inch and a half. Most wonderful the structure of it! Every blade of the fine grasses that composed it had been brought from far, and carried upward, from the side of the tussock into the top, through a small hole but little larger than a mouse-hole! Every Yellow Rail nest of my finding has been of this general character: About an inch thick; made of the finest possible grasses; and between four and five inches in diameter. The cupping of the nests is never so broad as with other Rails; just because, one must presume, fewer eggs are to be placed within it. (I must here put on record one marked exception to the above-described norm: “Y” found a nest amidst green grasses made almost wholly of green grasses).

My extended studies have convinced me that every nest of the Yellow Rail is most laboriously made, as a rule, by the carrying up, or in, of solitary blades of grass. (In case of the nest of 1912, the nest material must have been dragged in for some fourteen inches, before the chosen spot could be reached).

Among the faunal changes that have taken place in the Big Coulee, since first I knew it, has been the gradual displacement of the original coarse grass by fine, edible grasses. This change, I am sure, has been caused by the grazing and the mowing. Indeed, these factors, and especially the intensive grazing, I am sure have been responsible for the gradual desertion of the given section of the Big Coulee by the Yellow Rails. The given area originally affected by these Rails may be roughly comprised within a single acre. My own nests have seldom been found more than three or four rods from the little spring-stream (never save in two instances). This fact accentuates the love of the Yellow Rail, in its nesting, for water. Only two nests were ever found on dry ground. Three nests have, however, been found away from the indicated area. “Y” found one nest amid coarse grass in the narrow meadow-neck, between the buttes; and another in a similar environ, by the spring atop the butte. I, myself, once failed to find, in that same meadow-neck, a Yellow Rail nest that I was positive had been placed there.

No Rail, save *jamaicensis*, habitually lays eggs so few as does the Yellow Rail. I regard eight and nine as the norms; with ten as a probably normal maximum. The North Dakota breeding period is now well established. Few eggs are laid, I imagine, before the 20th of May, and very few so early. Most



"HALF-PRONE DEAD GRASS DIVIDED INTO TWO WISPS"

layings lie between the 1st and the 10th of June; while seldom have egg-embryos evinced a greater development than four or five days, at the very latest dates of discovery. Moreover, it seems clear that brooding does not, usually, begin until the sets are completed.

Yellow Rails are not close sitters, though nests have been approached with unstinted caution, and always from the same direction, save for two instances of flushing, warm eggs have always been the only evidence of recent brooding. At a point in the Cheyenne Basin some miles from the Big Coulee, I joined, in June of 1921, a group of friends—former hosts and hostesses—at a six-o'clock dinner, upon my arrival after a three-day journey. Hardly had we seated ourselves at the table before there suddenly came a tremendous down-pour of rain. Arriving at the meadows, next morning, I found the Montana Red-wings perching all about on the meadow-grasses quite disconsolate; for the flood had reached to the very tops of the fourteen-inch grasses! Full well I realized then what to expect in the matter of Yellow Rails! But, on the second day of search, I sauntered down into the meadow from a little knoll whereon I had eaten my luncheon, mechanically drew aside a little wisp of dead grass, and found beneath it a single Yellow Rail egg in an abortive nest. A tiny opening led into the nest-place from the northeast, with a similar "mouse-hole" exit on the northwest. The egg lay in the water—deserted. Next day, in quite the same manner, I wandered down upon the coulee after my luncheon, across the area mown the previous August, and suddenly came upon another lone Yellow Rail egg lying on a flat, wet surface of dead salt-grass about twenty feet from yesterday's nest. How this waif had ever escaped the vandals that peck holes in sparrow eggs, on the meadows, one might not even guess. The two eggs were identical, produced by the same bird; only, the second egg was marked at the small end.

Six days later, I had the rare joy of dipping into the Yellow Rail meadows at the northern colony. Here I found three male Yellow Rails clicking away

at intervals on the more open areas of the wide meadow. A fourth male entertained me, later, in lively fashion, in a wet, fine-grass area among willows at the meadow-margin. But I never found his nest. In mid-afternoon of the first day afield, while quartering, tirelessly, over a space whereon a male Yellow Rail had been persistently sounding, I suddenly flushed a female. The ground was very open; and instantly I knew by telepathy that I had, for the very first time in twenty years, flushed a Yellow Rail from her eggs! Without stirring, I glanced into the grasses before me. Four feet away, where lay a bit of half-prone dead grass, slightly divided into two wisps, I caught glimpses of the eggs. Eight of them there were, in the smallest and the most deeply cupped of all my nests. Narrowly had they escaped destruction. One of them had been pecked, near the smaller end, and was blown, right there, through the resulting hole. Water, aplenty, for the rinsing, lay at my feet. The eggs in this set were the most perfectly uniform of those in any Yellow Rail sets I have ever found, although most sets are very uniform. They were slightly pointed-ovate, clear of ground, over most of the contours, but all of them bearing caps of irregular specks of rather warm but pale brown. (This set is now the property of the Museum of Comparative Oology, Santa Barbara, California.)

During the next few delightful days, in that rich center of bird-life, I acquired new elements of Yellow Rail nesting-lore. My male of the willows led me many a wild-geese chase. Clicking lustily right here one moment, the next he would be sounding away a hundred yards distant. But male number two, out on the main meadow, was the tamest and, in the matter of rhythm, the most erratic, of any male observed in recent years. His clickings were, in the main, largely non-rhythmic, defying tabulation. And he kept me wearisomely on the *qui vive*, by his utter indifference as to my near presence. In reminiscence, one surprising fact confronts me: Of late years, in all three colonies, the soundings of my male Yellow Rails have been much less energetic and less frequent than of old; while they have afforded no acceleration, and no greater frequency, during the waning hours of the day. I am inclined to believe that the Yellow Rail breeds, locally, everywhere along that wonderful Cheyenne Basin; and that the nests have been so seldom found *just because nobody knows how!*

I have been informed by my good friend, Norman A Wood, of the University of Michigan, that sundry bird-men of North Dakota, piqued at their failure to find Yellow Rail nests on the very ground whereon I have repeatedly found them, have petulantly declared that "no nests of the Yellow Rail have ever been found". In refutation, I amusedly attest:—The eggs are diagnostic, for one thing; while,—for another,—but a few days ago, while overhauling my desk, I came upon a dainty reticule of birch bark into which was crushed a tiny paper sack. This, on being opened, bore the legend,—“Feathers of Yellow Rail, 1910”. Then I recalled: In trying to catch a female Yellow Rail at her nest, with a mouse-trap, I only succeeded in robbing her of a number of breast feathers. These, of richest brown, all white-barred, are like the feathers of no other bird among all the North American *ornis*.—How oddly does proof appear, sometimes, just when most we need it; and how gaily do we fling our hats aloft whensoever such proof does come our way!

So few are the extant eggs of the Yellow Rail that one may wisely enlarge, here, upon their unique characters and their beauty: The only ralline affinities, with these eggs, are with those of the Black Rail. From these they differ in their greater size and their somewhat narrower shape, in the deeper buff of the ground-color, and in the disposition and the color of the markings. Yellow Rail eggs are often markedly elongate, with a tendency toward equal-endedness. The ground-color is, originally, of a rich, warm, (varied) buff, which, however, inevitably fades, in time, even if the eggs are entirely kept from the light. Warm browns and lilacs are the prevailing tints of the markings, while occasional eggs are capped with a rich, dense mahogany. Normal markings involve spots and specks, never of any great size. These are, in most cases, confined entirely to the apex; although a few eggs in a set may

bear a few scattered contour spots of dull-brown. I am inclined to consider circletted eggs as quite unusual. My first two sets, only, exhibit this characteristic to any degree. The norm is probably a capped egg, with no spots, or few at most, over most of the surfaces. Two or three eggs in some sets may have the markings at the smaller end. Lineate markings appear to be rare, although a few eggs may bear a very few such that approximate what Nehrkorn, in his scholarly *Eiersammlung*, has termed "*schnorkeln*" (flourishes). For a remote example of this type of marking, see the egg photo portrayed (from one of my first sets)—J. L. Childs Collection—in Reed's *N. A. Birds' Eggs*, 105. Altogether the handsomest eggs of the entire series, of some ninety-nine units, are those of the set of 1912. All of these are uniformly and splendidly capped with a centrally solid mass of blended lilac and mahogany. Shells of the eggs of Yellow Rails are of slight gloss. They are quite hard, as one might expect from the character of the food eaten.

The literature germane to the breeding habits and conditions of these Rails is lamentably small and fragmentary. Hutchins, writing a century and a half ago, tells of what he (superficially) noted, in the Hudson Bay Region; while Preble, (*N. A. Fauna* No. 22), accurately describes the call-note. These two observers have established the northern limits of the breeding range. Maynard has told of the nestings of the Yellow Rail on the Magdalen Islands; Kumlén and Hollister have laconically cited the discovery of "young barely able to fly", in Wisconsin, at Lake Koshkonong, the famous; and B. H. Swales has illuminatingly spoken of this Rail as "found in portions of Michigan in low, wet fields grown up to tangled, coarse grass, weeds and sedges, from April to June" (*The Auk*, XXIX, 101).

I have reserved for the closing sections of this sketch a weird story of a remarkable, a unique, nesting of the Yellow Rail, on our Big Coulee, long years ago. Search for the nests of Yellow Rails may readily become a matter, not so much of the investigating *eye* as of the scrutinizing *fingers*. As one labors thus, hour after hour, the quest grows a trifle mechanical. So did it come about on a day, late one afternoon, far from where the Rails were clicking, that I



NEST OF 1912, AS FOUND.



CAPPED EGGS, SET OF 1912

carelessly ran a finger beneath a scanty wisp of hay, clear beyond the water-soaked areas,—only to touch an egg—*two* eggs!—but no sign of a nest was there at all! These eggs were very small; and, while marked with very *unjamaicensis*-like concentrations of spots at apex, they were *spotted all over*! And so, we waited—poor, fine John Knox and I—for that set of eggs to be completed. But we had carelessly gone to North Dakota without permits to collect. Moreover, we had, a few days before, stumbled upon a deputy game warden.

Under such stress did we wait, one, two, three days. The odd Rail set now numbered five eggs. But I had lain stark awake o' nights, for fear of losing so precious a set of eggs altogether.

And then, at three o'clock of the third morning, in vivid moonlight, we rose after sleepless hours, to visit the coulee. Under the radiant moonlight we stumbled across the hog-wallow, traversed the smoother prairie, descended the ravine by which we had always gone, and soon, amid a chorus of "*tick-tick, tick-tick-ticks*", were creeping, cautiously out upon the meadow.

No weirder environ ever greeted bird-lovers. Already, the day-birds were sleepily arousing; while the night-birds were at it, full tilt. Ever and anon there would float softly out upon the dewy air that soft, cooing, little-known call of the Short-eared Owl, *Coot-coot-coot-coot?* (with rising inflection). Already the Sharp-tailed Grouse were beginning to hoot. Here and there a piping Sora whistled his warning cry. Now and then, faintly, all about us, came the soft, croaking quack of amative Phalaropes, two females chasing a single male, swiftly and undulatingly, in midair. Two male Yellow Rails were clicking away lustily, an unceasing duet. The moon shone down with an almost unearthly brilliance. Mists were spectrally rising; and all the pungence of the morning meadows added its tang to the thrill of early days. With no small difficulty—it being yet dark for the finding of small things—did I spot my white signals. With utmost care I groped for the hidden eggs; and found them, at last. There were now SIX of them, the last probably having been added within the hour, or such a matter. Strange enough, then, was the thing we had found. *There was no nest at all*,—not even a hollowed place. The date being normal, we could think of no possible reason for this negligence.

Most careful measurements have, of course, been made of the eggs of the Yellow Rail; but so uniform have been the dimensions discovered, that the given resultant is based upon twenty-six eggs only. Thus, we have followed extremes: .77 - .87 by 1.03 - 1.18 inches (for normal eggs). The entire length variation is .15; that for widths only .10 (In the P. B. P. set of ten, the width variation was only .02—a remarkable uniformity).

I cannot refrain from quoting here the fantastic and ridiculous note of Hutchins regarding the occurrence and habits of the Yellow Rail near Hudson Bay (under date of 1777), as given by Macoun's Catalogue of Canadian Birds, (p. 153): "This elegant bird is an inhabitant of the marshes on the coast of Hudson Bay, near the efflux of the Severn River, about 150 miles south of York Factory, from the middle of May to the end of September. It never flies above sixty yards at a time, but runs with great rapidity among the long grass near the shores. In the morning and the evening it utters a note which resembles the striking of a flint and steel; at other times it makes a shrieking noise. It builds no nest, but lays from ten to sixteen perfectly white eggs among the grass." Thus

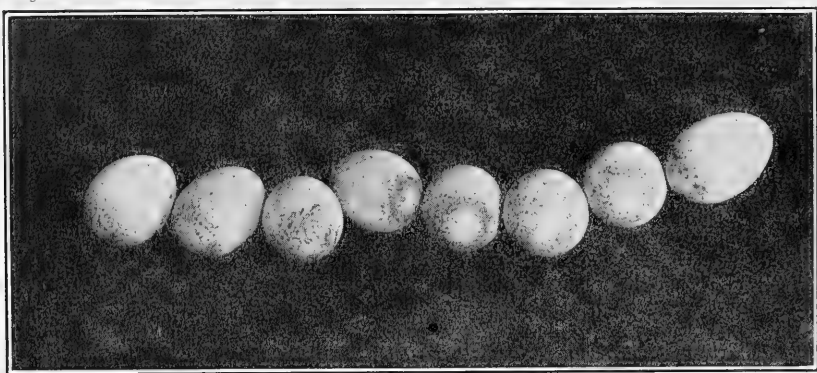


YELLOW RAIL IN CAPTIVITY. Photo by Norman A. Wood

did the earlier ornithologists leap at times from fact to fancy, when facts were wanting. And the ghosts of Hutchinses are audaciously roaming this fatuous earth today, in the pages of faddist magazines! Savants will surely pardon here a word of amateurish comment: From a fairly intensive study of the nesting of the Yellow Rail, I am forced to conclude that, in the case of the Yellow Rail, the same individual females lay eggs more or less varied as to tint and markings from year to year. And herein lies one of the stubbornly insoluble elemental problems which confront the inquirer in the domain of comparative oology. The only study dealing with these problems, so far as known to the writer of this sketch, is an intensive and most suggestive paper by H. Mousley, entitled, "Subsequent Nestings" (The Auk, XXXIV. 381, sqq., with graphic illustrations).

Pages and pages of this sketch have been voluntarily and ruthlessly slashed in the interests of space. Yet the writer must claim room for vaunting the still unexpressed thrills which have punctuated the Yellow Rail quests, and which have, for over twenty years, availed to keep him young. He desires, too, to express profound gratitude to those bird-lovers whose generosity has made these far journeys possible. Not least, by any means, is my gratitude to

those two gentlemen, widely-known ornithologists, who have just arranged for the financing of these trips for a further period of four years. The quest of Yellow Rails' nests is endlessly fascinating, and I shall never be done, I guess, until the grim reaper puts me into his collecting box.



CIRCLETTED EGGS—"Y" SET

THE "SEASON" OF 1918

By W. L. D.

Briefly, there wasn't any, in the proper sense of the word. Our readers will recall that the world was very much occupied during the spring of 1918. Artificial birds, contraptions of aluminum, steel, spruce, linen, collodion, and what not, plus blood and brains, had the right of way that year. The writer was engaged in coaching (financially) one of these temperamental monsters, hight Hydroplane. The flying tub did eventually flutter off to San Diego, and she established thereby a very creditable record, a Pacific record for non-stop flight of a hydroplane. But La! Uncle Sam wasn't interested in hydroplanes, (nor in the Pacific Coast) just then, for she was pouring millions into the construction of practice planes which (for Teutonic reasons) either never left the ground at all or else crumpled up neatly in midair. We "did our bit," or tried to, but so far as results were concerned, we might better have been out gathering linnets' eggs.

The "Comparative Oologist," who never before since his tenth year had failed to score on the birds in nesting time, was all but skunked this season. All that saved him was the privilege of bringing down a nest, n/5, of the California Jay (*Aphelocoma californica*), a nest located by another pair of eyes in the top of a live oak tree in his own front yard. What did redeem the situation museum-wise was the fact that these were uncommonly fine examples of the "red" type, a type not previously observed in this immediate vicinity. Whereas the ordinary type of Jays' eggs runs from pale sulphate green to lichen green, as to ground, with markings of deep olive, or even Lincoln green, the red type has a ground varying from grayish white (the choicest) to lichen green, and markings of warm sepia or bister to Rood's brown. Please understand, then, that this set of home-brewed Jays' eggs of the red type is quite worthy to sustain the dignity not only of a tottering reputation, but of a scratch season.

THE SEASON OF 1919.

By William Leon Dawson

The Santa Cruz Island Trip

The war was over. Thank God for that! It was meet, then, to go bird-egging. Two of the youngsters, William Oberlin Dawson and Robert Canterbury, were assigned to Santa Cruz Island, the little principality of the Caire Estate, twelve miles by twenty-five in dimensions, and which lies twenty-five miles distant (over a sometimes choppy sea) from Santa Barbara. Their instructions were to concentrate on Ravens, Dusky Warblers, Island Wrens, Island Shrikes, and Santa Cruz Island Jays. Regarding the last-named species they were enjoined not to take "threes." Thereby hangs a tale of meager returns, for threes were the ordained fashion for Santa Cruz Jaydom for the season of 1919. In a residence of over five weeks, 39 days, to be exact, these young men, both of them familiar with island ways, took only five sets of the Santa Cruz Island Jay, all fours; and they estimated that approximately forty sets of three were "passed up."

Since open confession is alike good for the soul and corrective of prejudices, to which even scientists are liable, I submit a complete list of the "takes" for the island residence, March 17th to April 25th, inclusive. (We are so often approached by collectors who wish us to use our influence with the Island management to secure privileges for them, that we submit this record with the query, Is it really worth your while?)

	Number of sets take
Dusky Warbler (<i>Vermivora celata sordida</i>)	None
Island Shrike (<i>Lanius ludovicianus anthonyi</i>)	7
Raven (<i>Corvus corax sinuatus</i>)	7
Western Mockingbird (<i>Mimus polyglottos leucopterus</i>)	6
Santa Cruz Jay (<i>Aphelocoma insularis</i>)	5
Bald Eagle (<i>Haliaeetus l. leucocephalus</i>)	2
Santa Cruz Island Wren (<i>Thryomanes bewicki nesophilus</i>)	2
"Sparrow Hawk" (<i>American Kestrel</i>) (<i>Falco s. sparverius</i>)	1
Allen Hummer (<i>Selasphorus alleni</i>)	1
Western Chipping Sparrow (<i>Spizella passerina arizonae</i>)	1

Total 32 sets—representing an average of less than one set of eggs per day for the combined efforts of two experienced workers (who, incidentally, spared nothing they came across except House Finches and Black Phoebes)—about \$300 worth "exchange." And yet some of our exchange correspondents in the East insist that our western rates are still too high!

On the 25th of March and continually thereafter, as often as they passed that way, the boys encountered a flock of some twenty Band-tailed Pigeons (*Columba fasciata*), the first ever recorded from any of the Santa Barbara Islands.

The Falcon Trip

On the 7th of April the Director, accompanied by another "youngster," a layman, Giles E. Dawson, to wit, set out in a Studebaker Six for a ten day run in the Falcon country. An incidental object of the expedition was the securing of a representative nest of the Yellow-billed Magpie (*Pica nuttalli*). Thanks to a recently completed highway which penetrates a hitherto unexploited canyon, we sighted a superb nest not two hours from home. The birds had built their castle solidly about a sturdy upright branch of white oak (*Quercus lobata*), and the protruding twigs bore everywhere flaunting gray-green banners of lichen. The immense size of this structure—it is three feet high by three feet in horizontal diameter, say eight cubic feet in bulk—made it a veritable prize, imperative for museum use. Accordingly, we removed the five fresh eggs, wrapped the nest copiously with twine, cut away its supports, and lowered it, 45 feet, into the

waiting automobile; sped for home, installed it in giant case No. 24, and set out again upon our adventure, only six hours behind the schedule.

We examined many scattering and decadent colonies of these magpies en-route to and from the falcon country, as well as isolated nests tucked away in lateral canyons. In default of mud the birds use cow-dung for the modeling of the bowl proper; and, oftener than not, they introduce an added refinement by making the brim of the bowl dip gracefully at the entrance. In much of the country traversed the trees are tormented by mistletoe, and clumps of this parasite so closely resemble the "bushel basket pile" of the magpie, that detection of the of the latter is not always easy. All the nests found, but one, were in white, or "valley" oak trees; and I remember retrieving in person a handsome set of seven eggs from a nest eighty feet up, after the youngster had volubly declined the offer of a dollar to make the ascent. By way of getting full measure, I took the nest itself; and it proves to be not over one-sixth the bulk of the first example taken.

The temptation is almost overwhelming to linger in reminiscence over a trip through country whose every detail is singularly dear to the writer; but there are many eggs to gather this season, and I will incorporate only three thumbnail sketches of typical camps, with attendant horizons. The "horizons," or local bird lists, are taken, in each instance, early in the morning before the work of the day has begun, or at least before the party has moved on.

April 8: Camp under valley oak (*Quercus lobata*) in flat-bottomed but narrow and waterless valley west of Los Olivos; luxurious grass, but little or no low cover besides; and everywhere, upon bottoms and hillsides alike, stately and diffusely isolated oak trees.

Horizon—noted in order of recognition, or associational attention: Pacific Horned Owl; Barn Owl; Western Crow; Western Meadowlark; Bullock Oriole; Western Mourning Dove; San Diego Redwing; Greater Yellowlegs (migrant), Plain Titmouse; Slender-billed Nuthatch; California Woodpecker; Nuttall Woodpecker; Red-shafted Flicker; Cassin Kingbird; Lawrence Goldfinch; House Finch; Golden-crowned Sparrow (migrant); Western Lark Sparrow; Sierra Junco (migrant); Tree Swallow; Willow Goldfinch; Anthony Towhee; Western Bluebird; California Jay; Western House Wren; Western Kingbird; Western(?) Savannah Sparrow (migrant).

April 9: Camp in a little draw opening out on the Salinas River at a picturesque spot midway between Santa Margarita and Pozo. Rugged cliffs frown upon the scene, and the half-open woods are formed by a pleasing mixture of oaks of three sorts, digger pines (*P. sabini*), and chaparral.

Horizon: Great Blue Heron; Pacific Horned Owl; Dusky Poorwill (heard singing almost all night); Red-bellied Hawk; Mexican(?) Cooper Hawk; Western Crow; California Jay; California Thrasher; California Woodpecker; Red-shafted Flicker; Nuttall Woodpecker; Willow Woodpecker, Slender-billed Nuthatch; Plain Titmouse; Pallid Wren-Tit; Western Gnatcatcher; Western House Wren; Black-headed Grosbeak; House Finch; California Purple Finch; Gambel Sparrow (migrant); Golden-crowned Sparrow (migrant); Sierra Junco; Green-backed Goldfinch; Kingfisher; Mountain Quail; Valley Quail; Western Robin (migrant); Western Bluebird; Dwarf(?) Hermit Thrush (migrant); Violet-green Swallow; W. Mourning Dove; Audubon Warbler (migrant); Black Phoebe; Spurred Towhee; Anthony Towhee; Western Kingbird; Bush-tit; Turkey Vulture; Hummingbird(sp).

April 10: In camp on San Juan Creek near La Panza, San Luis Obispo County. Bounding hills to west grassed, with scattering white oaks. Hillsides immediately to hand oozy with spring waters; hence a growth of wild gooseberry, elder, willow and oaks. Valley floor open, sandy, grassy, or with a few stunted cottonwoods much rubbed by cattle. Broken hills to east covered with grass or sage association and deeply penetrated by steep walled washes or barrancas, which sometimes rise to the dignity of canyons.

Horizon—early morning only: Tule Yellowthroat; Cassin Kingbird;

Western Kingbird; Western Lark Sparrow; California Jay; Dwarf(?) Hermit Thrush (migrant); Pacific Horned Owl; Dusky Poorwill; Western Meadowlark; House Finch; Raven; Western Mourning Dove; Plain Titmouse; Killdeer; Tricolored Redwing; Brewer Blackbird; Bullock Oriole; Gambel Sparrow (migrant); American Pipit (migrant); Lawrence Goldfinch; Cliff Swallow; Rough-winged Swallow; Red-shafted Flicker; Western Bluebird; Valley Quail; Rock Wren; Sparrow Hawk (American Kestrel); Bicolored Redwing; Black Phoebe; Greater Yellowlegs (migrant); Sierra Junco (migrant); Golden Pileolated Warbler; Ash-throated Flycatcher; Audubon Warbler (migrant); Song Sparrow (sub-sp?).

It will be seen from these lists how small a place migrant species occupy in our early or middle spring horizons. This is perfectly characteristic of western California, save for the last week in April and the first week in May, when passing birds are considerably in evidence.

To complete the faunal picture of this section, I append a horizon obtained on the 12th of April in almost pure sage. The "almost" allows room for some precipitous cliffs and a steep-walled barranca; but the cover for a mile around is sage (*Artemisia tridentata*), unmingled with aught save the flowering plants peculiar to that association. Every item save Gambel Sparrow (*Zonotrichia nuttalli intermedia*) represents a local breeding species:

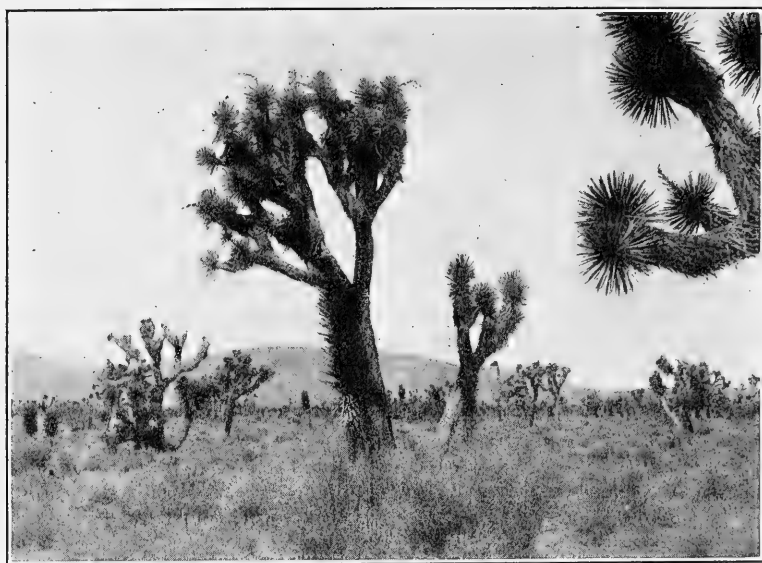
Valley Quail; Western Mourning Dove; Turkey Vulture; Western Red-tail; Prairie Falcon; Sparrow Hawk; Pacific Horned Owl; Say's Phoebe; Cliff Swallow; Violet-green Swallow; Bewick Wren (*San Joaquin*); Rock Wren; Western Gnat catcher, Bush-tit; Lawrence Goldfinch; House Finch; Black-chinned Sparrow; Gambel Sparrow; California Brown Towhee; Raven.

The two chief objects of interest in the cattle country are Ravens (*Corvus corax sinuatus*) and Prairie Falcons (*Falco mexicanus*). Quantitatively considered, our luck with either species was very meager, since we took only two sets of each. This paucity was due partly to the tardiness of the season and partly to the encroachment of civilization. Nevertheless, each of the four takes is separately and qualitatively enshrined in memory. A Raven's nest, spotted on the evening of April 9th, aroused the fondest hopes, which were not disappointed. The male had been noticed on guard, so at a favorable turn in the canyon I loosed a sudden clamor of ax on steel riata-pin, to flush the female. It took the lady fully thirty seconds to emerge from a half-hidden cleft some sixty feet up and forty feet over the cliff. Upon roping over, I discovered the probable cause of delay. There had been only one egg in the nest, and this the wily bird had pitched over the side, where it had lodged high up in the skirting. This could not have been an accident due to haste, for a raven's nest is very deep. It was a deliberate ruse, a bait, intended either to placate our cupidity, or at least to develop the nature of our interest. Whatever the game was I defeated it by restoring the egg to the nest.

Upon our retreat the bird could hardly await our departure, but rushed over to see how the ruse had worked. She alighted on the edge of the nest, took one comprehensive, and doubtless bewildered, glance, and fled again. That her misgivings were allayed, we know; because on the sixth day thereafter we removed a set of six eggs from this nest—thus adding, no doubt, one more convulsion to the cerebral hemispheres of *Corvus corax*.

It was the "white" falcons who more nearly outwitted us this year, for we had invaded their sanctuary for the second time and were on the retreat, thoroughly baffled, when a vagrant impulse seized me to fire a pistol back, and some two hundred yards away, at a last year's raven's nest set high against a rock wall. The celerity with which a male Prairie Falcon abandoned five perfectly good eggs of the rare "white" type, was a balm to wounded spirits.

In another canyon a male Prairie Falcon keel-hauled a passing eagle, and I marked his approximate range of interest upon his return in lordly mood. There were many possibilities, but I tried first a likely looking old Raven's nest a hundred yards away. The effect was electrical. Out shot a female Prairie Falcon as though touched by a bullet; and when she had caught her breath she filled the air with fierce aspersions, perhaps pardonable under the circumstances.



TREE YUCCA FOREST, NEAR PALMDALE

The ascent was tedious, and the sun torrid; but the descent over a conglomerate escarpment some ninety feet in height was rewarded by a set, $1/4$, of the darkest eggs of this species which I have ever seen, so dark indeed, that I first exclaimed "Duck Hawk!" incredulously. The amiable birds did not omit to offer comments anent my skill as a rope artist; and the female made some beautiful stoops at my head—always a solace under such circumstances. Ah me! What a rascal is the oologist who enjoys such objurgation! But I'll own to it. And as the indignant lady stood upright in her empty cell and glowered at us in full retreat, I turned and blew her a kiss and promised to come back another year.

The Owens Valley—Mono Trip

"In all the world no trip like this" is the slogan of some transportation line—I've forgotten which. I'm sorry that the phrase is preempted, for I should like to have used it in this connection. Too bad! I will not try to make it over, to adapt it by inserting the word "oological;" for as sure as we did so, we should receive forty inquiries, another season, about hotels and best roads, and Where did you get so-and-so? and Do you suppose I can get out on those islands? and Will you help me get permits, etc., etc.?

You see the dilemma. If we tell the truth, all of it, with names and dates and precise specifications, we shall be responsible for a wave of destruction sweeping along the Lincoln Highway and devastating its freshest pastures. There could be only one outcome of such a course in a state so much in the limelight as California—withdrawal of private privileges and a body blow to collectors' rights. Perhaps it will come to that, anyhow; but the M. C. O. will accept no responsibility for bringing that condition of things to pass. Therefore, our readers will excuse us if in this and related accounts we are purposely vague about localities, and if we decline to erect sign posts. Of course certain localities will have to take the gaff, anyhow, sooner or later—Mono Lake, Mammoth, Red Rock Canyon—or else go under the reserve system.

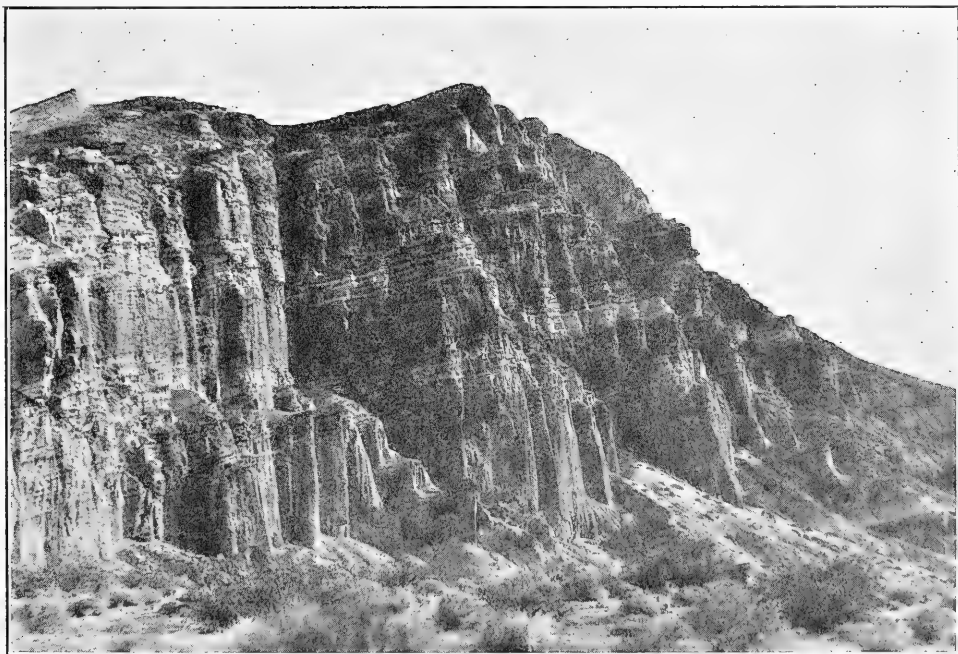
But all reluctances aside, it is doubtful if the tourist or stranger, whether oological or tempermental, could find in a reasonable distance, or so easily, a greater variety of scenery, cover, and temperature, than lies between the ocean shore at, say, Santa Barbara and the crest of the Sierras at, say, the Pinnacles *via* Owens Valley. The amazing contrasts of paradise and desert, of lands

flowing with milk and honey, of cactus thorn and heather bloom, creosote-bush and snow, such as are found in California, it is beyond the pen of the enthusiast to exaggerate. It goes without saying that oological variety follows the same lines, and that the working oologist enjoys the thrills of contrasts as vividly as do the professional appreciators of things Californian.

If the reader will join us, then, for a seven weeks' jaunt, we will taste some of these contrasts, and we will agree to set out our choicest oological vin-tages. Our party comprises the writer, and two assistants, William Oberlin Dawson, aged 19, and Robert Canterbury, a lad of 17, already favorably known to readers of the M. C. O. Journal. Our route lies across the Mohave Desert and along Owens Valley, "back of the Sierras," to Mono Lake and, later, the Mammoth Lakes, in southern Mono County, with a side excursion, on foot, to the summit of the White Mountains, and several such to the higher ranges of the Mammoth section.

We set out at midday, May 16th, in a 50 h.p. automobile, with commodious trailer; and we made camp near Palmdale, 125 miles away, in the midst of a wierd tree-yucca forest on the edge of the Mohave Desert. If we had been suddenly transported to Heaven the sense of difference could scarcely have been greater. The bayonet-tipped leaves assured us that blood would still follow a jab, as upon earth, and the Scott Oriole (*Icterus parisorum*) sang somewhat after the fashion of mundane birds, albeit the tonal quality, limpid, chastened, orphean, rather suggested fields of asphodel. We wandered in this qualified Elysium through the early forenoon of May 7th, until the rising tide of heat made further effort valueless; but we found ourselves too late for profitable bird study—nesting, anyway—and had to be content with Scott Oriole, n/5, near hatching, Western Kingbird, n/4, and Swainson Hawk, 1/4, fresh, the last-named an elegant set retrieved from the crotch of a yucca some twelve feet up.

The crossing of the desert was a bore after the tree-yucca had given way to creosote or outright desolation. Yet the gods of the desert were good to us on this as on all subsequent occasions, eight in all, when I have undertaken to cross the Mohave section. I have never experienced a temperature of above 110 de-



NESTING CLIFFS OF WHITE-THROATED SWIFT (*Aeronautes melanoleucus*) RED ROCK CANYON

grees Fahrenheit, and rarely above 95, although 115 is a usual summer temperature, and 125 no rare exception.

We woke on the morning of May 18th to a temperature of 50 degrees, in a canyon whose fluted and tinted sides later pulsed in the first decade of the second hundred, and which becomes on occasion a perfect inferno. We should have passed on, but William had had the good fortune to trace, before breakfast, several White-throated Swifts (*Aeronautes melanoleucus*) to their nests in the sculptured recesses in one of the most picturesque of the containing walls. The lowest stratum of this embattled cliff is of indurated earth; and while the face of it is perfectly perpendicular, being protected by a sandstone capping, the rare storms of winter have left it seamed and scaled. The first location was only six feet down beneath the capping, but even this necessitated the use of rope and much vigorous picking and prying with a steel-shod pike. The eggs were placed on a flimsy platform of agglutinated feathers resting on the floor of a crevice well back and guarded by a tortuous approach. After drilling for an hour, William appealed to the longer "reach" of his dad; and in the effort to make good, fishing the eggs out one by one on an aluminum spoon, I stretched my left arm, permanently, for at least an inch and a half—there or thereabouts. Five elongated ovals as white as snow and as fresh as paint rewarded our efforts, and were held to be worth all our osteekteinic contortions.

Owens Valley proper is poor collecting country. We had been lured to this section by extravagant accounts of extensive swamps where ducks bred by thousands; but what we found, instead, was a few decadent sloughs, which were being sucked dry by the feeders of the great Los Angeles aqueduct. If we were disappointed in one way, we were more than compensated by the glories of the Sierras. Not elsewhere in America may one see a mountain chain rising sheer ten thousand feet above the "culture level," or not at least within so short a space, measured horizontally. Here one steals up to the very feet of majesty and catches it unawares. The course for the last hundred miles is an ecstasy of privilege, even though some of the country roads are of the vilest.

Still intent upon the undiscarded, although badly damaged, theory of a duck paradise, we made camp on the 22nd of May near Laws, some six miles northeast of Bishop, which is the principal market town of this interior section. We found here a group of depauperate swamps maintained by the overflow of irrigation ditches and much overstocked by both cattle and horses. Although the number of marsh-haunting birds was disappointing, the variety was reassuring and seemed at least reminiscent of a former glory. Ducks were scarce, but a pair of Blue-winged Teals (*Querquedula discors*), accounted rare anywhere in the Pacific Coast States, were undoubtedly breeding. Wilson Snipes (*Gallinago delicata*) filled the air with their amiable hootings; but the cattle pressed too closely upon their cover, and we found only a single nest of four, fresh. Wilson Phalarope (*Steganopus tricolor*) were also common, and we secured four sets, not without a very considerable expenditure of time. A mild zest was added to our adventures by the presence of three "Nevadan" forms described by Grinnell, viz., the Nevada Redwing (*Agelaius phoeniceus nevadensis*), the Nevada Cowbird (*Molothrus ater artemisiae*), and the Nevada Savannah Sparrow (*Passerculus sandwichensis nevadensis*). The last named, especially, was common—much commoner than any other member of the *sandwichensis* group at any point within my knowledge.

Our stay of eight days in these dubious swamps was aggravated by foul-smelling mud, diligent mosquitoes, and fiendish horse-flies; but it was alleviated by a double panorama of distant mountains, the most solacing in our experience. The glories of the Sierras, which crowd the western sky in bewildering array, are supported upon the east by a desert range whose very name, White Mountains, is scarcely known beyond the limits of a county, yet whose major peaks, well to northward, surpass the 14,000 foot level, and so rank among the highest in the United States.

Bobby and I yielded, rather weakly, to the lure of this little-known mountain body, and spent three days, with knapsacks, ascending the nearest summit, say 10,500 feet high, by way of Silver Creek. We found a rather desolate stretch of mere "climb it," crowned, especially on the eastern slopes, with open groves of pine timber, chiefly *Pinus contorta*, alternating with sage (*Artemisia tridentata*). We had to skirmish sharply for water, and the mosquitoes appeared to have a kindred thirst; but the curious mixture of Upper Sonoran and Boreal faunas interested and rewarded us; and it is always a diverting task to follow in the wake of Grinnell's sub-species grinder. For example, we saw the White Mountain Hermit Thrush (*Hylocichla guttata polionota*) and the Inyo Nuthatch (*Sitta carolinensis tenuissima* Grinnell). The Nuthatch rather dominated the local scene and intrigued our attention to the extent of 3n/6, all hard set.

Upon our return, May 29th, we relieved William at his mosquito watch, blew eggs, checked over horizons, and prepared to move to higher ground. The following is the nine-day horizon, May 22-30, inclusive, for the exact section of swamp land lying between Bishop and Laws and the desert rim to northward, all at an altitude of about 4,000 feet: Mallard, Blue-winged Teal, Cinnamon Teal, Shoveller, Pintail, Ruddy Duck, White-faced Glossy Ibis, Bittern, Black-crowned Night Heron, Virginia Rail, Sora, Coot, Northern Phalarope (stranded?), Wilson Phalarope, Black-necked Stilt, Wilson Snipe, Spotted Sandpiper, Hudsonian Curlew (migrant), Killdeer, Valley Quail, Ring-necked Pheasant (introduced), Western Mourning Dove, Turkey Vulture, Marsh Hawk, Red-shafted Flicker, Pacific Nighthawk (arrived May 24), Black Swift (passing), Black-chinned Hummer, Western Kingbird, Ash-throated Flycatcher, Say's Phoebe, Traill Flycatcher, Black-billed Magpie, Nevada Cowbird, Yellow-headed Blackbird, Nevada Redwing, Western Meadowlark, Bullock Oriole, Brewer Blackbird, English Sparrow, Modoc Song Sparrow, Nevada Spotted Towhee, Rocky Mountain Blue Grosbeak, Lazuli Bunting, Western Tanager (migrant). Cliff Swallow, Barn Swallow, White-rumped Shrike, California Yellow Warbler, Western Yellowthroat, Western Chat, Olive-backed Thrush (passing?), Western Robin. 55 species, of which two introduced.

From Bishop we climbed up into, or rather upon, Long Valley, a well watered plateau of 7,000 feet elevation, which skirts the Sierras for twenty miles, and fades into the jumble of low pine-clad foothills which flank the passage to Mono Lake. We paused only long enough, en route, to sample the Mountain Chickadees (*Parus gambeli*), Brewer Sparrows (*Spizella breweri*) and



A GLIMPSE OF THE SIERRAS FROM CAMP NEAR LAWS

Western Vesper Sparrows (*Poocetes gramineus confinis*), which haunt these upland pastures or their fringing groves of aspen. Before we forsook the pines we took an early morning reconnaissance, and William climbed up, squirrel-fashion, by clinging to the rough bark of a gigantic yellow pine which held in a hollow, some forty feet up, two eggs of the Lewis Woodpecker (*Asyndesmus lewisi*). It seemed a shame to repeat such an arduous climb, but the young man felt rewarded when, upon the return journey, the prospect yielded a perfect set of seven eggs.

Our emergence upon the edge of the sage-clad basin which holds Mono Lake in its central grasp was signalized by the finding in a greasewood (*Sarcobatus vermiculatus*) of a nest and three eggs of a supposed Wright Flycatcher. The situation, a mile and a half from timber and in the midst of perfectly typical vegetation, was unique in my experience, and led to a more methodical search of this greasewood section upon our return June 7th. We found a supposed colony containing half a dozen pairs of flycatchers, and this yielded us three more sets of eggs, each of four, and a handsome series of photographs of sitting birds. The nests are invariably in greasewood, instead of sage. They are very bulky, much more so than nests of typical *wrightii* at timberline, and they are so placed that they afford both a measure of concealment from the sun and an outlook upon passing insects. The female forages occasionally for food, although the male sometimes attends her, and is altogether more free with his attentions than would be the case with the mountain birds.

Arrived at Mono Lake, we are not content with a somewhat prosaic littoral fauna, but must signal across by means of auto lamp flashes to Mr. W. D. McPherson, the czar of Paoha Island. This gentlemen, although a perfect stranger to us, very obligingly comes after us in a wheezy launch and extends, in the name of science, the courtesies of his island principality. As we cross, we are regaled by stories of the lake's treacheries, of sudden winds and overwhelming waves. The water in Mono Lake is intensely alkaline, so that, while it would be impossible to sink in it, death by strangulation would be easy enough and an almost certain result of a spill in a storm. The lake harbors no fish, but its waters are crowded with a small "Branchipus-like Phyllopod" (*Auct.* Professor W. K. Fisher); and these pale ghosts, a million to a pound, not only supply the needs of more than a thousand California Gulls (*Larus californicus*) at breeding time, but of an unknown number of California Eared Grebes (*Colymbus nigricollis californicus*) and tens of thousands of migrant waterfowl, in season.

Paoha Island, centrally situated, has a land surface of something over two square miles. It is low, sharply rolling, in the main, with a central ridge showing bold escarpments. It is composed chiefly of stratified volcanic ash, variously bent, warped, and faulted. The northern third of the island, however, is of igneous rock, the extreme northern portion being a horrible welter of recently cooled lava of a reddish black color; while the extreme eastern tip, known as the "hot rocks," still emits steam and warms the adjacent waters.

Mr. McPherson, who has recently acquired this holding through home-stead and other rights, intends to develop it as a goat ranch, and for this it is admirably suited, for it has not only artesian waters, about twenty miners inches, of an excellent quality, but it is more than half covered with a variety of vegetation, chiefly *Atriplex* of several varieties, among which *A. confertifolia* stands first, both for abundance and forage value.

Negit Island, with an area of perhaps three-quarters of a mile, lies a few hundred yards west of Paoha Island, and is also of recent volcanic origin. Its eastern aspect slopes gently to the water's edge; and it is here, as well as on the neighboring portions of Paoha Island, that the California Gulls nest, to the number of a thousand pairs. We were a little too late for good nesting, since chicks were beginning to appear; but we saw enough to assure us that the colonies were composed of a vigorous mixed stock, rather than an inbred type like that of *Larus occidentalis*, for example, found on the Farallon Islands.



CALIFORNIA GULLS: THE NEGIT ISLAND NESTING

Paoha Island is also the stronghold of nesting Violet-green Swallows (*Tachycineta thalassina lepida*). While we were too early for eggs, we found the island in a fever of expectancy, with these graceful sylphs scurrying in every direction in search of feathers or other soft building material. The lava chimneys of the usual "devil's post pile" at the northern end of the island afford them unusual facilities both for sequestration and sociability.

Most illuminating of all was the presence of White-crowned Sparrows (*Zonotrichia leucophrys*) upon this island. At first I did not take them seriously, supposing only that they were loafing about until the snows should relent in their mountain fastnesses. Not even when a bird flushed sharply from a bush at my very feet, did I give the matter more than a passing glance. But when Bobby Canterbury, who is blessed with a more hopeful spirit, flushed a bird under like circumstances, he dug into the bush determinedly and discovered a nest containing one egg sunk in the earth under the shelter of a recumbent limb. Think of this typically boreal bird nesting under essentially desert conditions! Under an atriplex bush, of all things! Bobby's find had materialized into a set of three when we were obliged to leave; and I have no reasonable doubt that the entire population of Whitecrowns was engaged in nesting operations at the time of our visit, June 3-6.

On the 7th of June our party doubled back upon its course, and put in at Mammoth, where we spent an entire month. It had been the writer's intention to report this entire season *verbatim et serialim*, but the good fortunes of two succeeding seasons having led our M. C. O. party into the same section, it seems best to describe the Mammoth country under a separate caption and at a later time. The most significant of this year's experiences, viz., those with the Sierra Nevada Rosy Finch (*Leucosticte tephrocotis dawsoni*) have been segregated under another heading in this issue of the Journal of the M. C. O. Suffice to say that we had a month of strenuous and profitable activity at altitudes ranging between 8,000 and 12,000 feet, and that we returned home, under protest, thrilled alike with the tingling airs and the oological opportunities of the "high line."

Of course these scientific junkettings are not all roses. There was the heat and the glare of the desert to face on the return journey. And though we escaped fifty-seven varieties of insect pests by leaving the mountains, we incurred others quite as competent. At George Creek, in Owens Valley, there lives a race of ants with cutting instruments of terrible precision, and a family, or tribe, of mosquitoes, almost microscopic in size, whose envenomed tongues outrank the lashes of the seven furies. Our party, variously disposed over the hard ground, was suffering through the late evening hours in such grim silence as veterans will exact of themselves, when a belated automobile party, three gentlemen, arrived, and proceeded to lay out a luxurious equipment—pneumatic mattresses laboriously inflated, and all that. These gentlemen, being very considerate of the presumptive somnolence of their fellow campers, bestowed themselves swiftly and quietly, and a pregnant silence soon ensued. Finally, "*Holy Mackerel!*" burst like a rocket upon the midnight air. There was whispered consultation; mattresses were hurriedly deflated, and our considerate friends of unknown visage left for realms, also unknown, where the siren mosquito biteth not nor doth the lowly ant fornicate.

THE ETHICS OF COLLECTING

By A. Brazier Howell, Pasadena, California

In a recent conversation with the Editor of the Journal, the present writer chanced to express a few opinions in regard to the ethics of collecting, whereupon he was asked to present, in more concrete form, his ideas on the subject. This is my excuse for straying, in more or less rambling fashion, into pastures that are not altogether familiar to me, for I am not a conservationist in the stricter interpretation of the word: rather am I a conservationist of the collector. Would that there existed ten times as many boys just starting the fascinating pursuit of egg hunting, providing that they start, and continue, in the right way: for good sportsmanship is as essential in the collecting game as in football, track, or rowing.

We are all familiar with the stereotyped reasons for justifying the collecting of eggs and birds—and they are good ones. Kill a few stray, bird-hunting cats, and take a few sets of the more harmful hawks and owls, and you have a substantial balance on the right side of the ledger, that will take you some weeks of collecting to balance—a fact, in spite of all that the more rabid protectionists may, and will, say to the contrary. There!—your conscience is fully appeased. But the man on his front lawn and the farmer in his field do not know all that, so you cannot expect them to retain their wonted calm demeanor if you collect everything in sight from under their very noses.

The most fundamental law in nature is that of self-preservation so, if you like, we will take that as the chief reason for ethical collecting. It is not what you are permitted to take under the law, and for that matter, it is not so much the law either, as it is to play the game right. If you do not, you will not only get yourself into trouble, but all other collectors as well. The great cult of professional preventers is becoming a power in the land, and in many states they have so drastically throttled the collecting permit that one hardly dares even hesitate by a nest. Where such conditions obtain, we may be reasonably certain that the collector, or rather, a collector, has helped dig the communal grave. The thoughtless shooting of a few birds on a side street of a town, a bushel of seabird eggs, or a few quail for supper during the closed season, may do more harm than a dozen careful collectors can efface in years. An avian white-ribboner gets hold of the details, spreads it far and wide, and there you are. If we do not put a stop to the activities of the few collectors who are indiscriminate and irresponsible, they will put a stop to *all* collecting, within a few years.

For our own selfish interest, if for no other reason, we must work with the game wardens to enforce what is fair and right. That does not mean that we should report every occurrence of which we do not approve, but, better, go to the transgressor, and in a friendly manner, remonstrate with him and point out the error of his ways. If he proves to be a hardened malefactor, then we need not hesitate to report him because of fear that we may be considered as "snitchers". We hold permits and are morally bound to uphold the spirit of the game laws; we are more interested in the welfare of the birds and of collectors than anyone; we are good sports, and we do not want to hold traffic with one who is not in sympathy with such a simple creed. He should be made to behave or else be kicked out of the nest before he causes the collapse of the whole structure.

I cannot see any logical objection to taking reasonably large series of the skins or eggs of fairly common birds, providing such series are really needed in our investigations. What harm is done by taking twenty-five sets of Song Sparrows when the average pair of California Jays probably destroys more than that number of small birds' nests each year? Shoot the jays and call it square. If you have a chance to make a trip to a good colony of sea birds, take what sets you and your friends really need. A single storm does immeasurably greater damage. But it is another matter if you go back each year and disrupt the whole economy of the colony, or if you "clean it out", or if you systematically take second sets of the larger birds. Such a collector could hardly be considered a good sportsman. Maybe you *have* an unlimited permit, but that signifies nothing when it comes to ethics. I think the majority will agree in judging a man who, with a permit, takes four sets of eagles year after year from the same birds, considerably less of a good sport than one who, having been refused a permit for no reason of his, goes out and takes a dozen sets of common species that he needs. We would all rather be arrested for speeding (providing we escape being fined), than be accused of being a road-hog.

In medicine or in any other profession, the unethical member has short shrift, so why not adopt a code of ethics ourselves, and by the weight of our combined opinions, force fairness upon those who do not relish it? For a start, I suggest something after the manner of the following:

To be strictly fair to other collectors and to the birds.

To respect the property rights and prejudices of others, and not to flaunt our right to collect in the faces of all beholders.

Never to take second sets (especially of the larger birds which do not nest a third time), except in rare cases where one is making a special study.

Never to take, year after year, from the same birds, eggs of such large species as are apt to nest but once each season.

To limit one's annual take of eggs of the rarer and larger species to, say, five sets, except in unusual cases, such as when one makes a single visit to a large rookery, not to be repeated for a number of years: and to use moderation in collecting eggs of all birds.

To take only such eggs of game birds as are actually needed.

When a nest is shown you by a fellow collector, leave that pair of birds alone for all time.

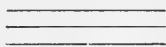
Do not encroach upon the favorite collecting ground of another when he has prior "rights".

When out with a fellow collector, apply the golden rule.

Ship exchanges and acknowledge the receipt of specimens promptly, and do not try always to "get the best" of the other fellow.

Prepare all specimens so as to make them of greatest value, and use everything collected to the best advantage.

Discourage irresponsible collecting.



PUYSEGUR POINT AND PRESERVATION INLET,
WITH AN ACCOUNT OF THE BIRDS.

R. S. Sutherland, R. A. O. U. etc.

Puysegur Point is situated on the southwestern corner of the South Island of New Zealand, and forms the southern point of the entrance to Preservation Inlet. The surrounding country is bush-clad; the rainfall is excessive—some 100 to 120 inches a year—and the soil, generally, is of a peaty nature. The peat harbors and forms the breeding place of millions of pestiferous sandflies, the numbers and venomous powers of which must be experienced to be believed. On calm days it is impossible to remain outdoors, and many opportunities to photograph and observe the birds have to be neglected on account of these small pests. The district is a poor one, too, for the egg-collector for the same reason, as many birds remove at the nesting season to places untroubled by flies.

In times gone by this particular district was noted for its large numbers of the peculiar birds, such as, Kiwis, Kakapos, and Wattled Crows; but these have now ceased to exist. Also, within easy reach of this place, the first living example of what is perhaps New Zealand's most remarkable bird, the Takahe (*Notornis hochstetteri*), was taken by a party of sealers. The numbers of the existing species are also greatly reduced, and are in some instances almost extinct.

No bird is at all plentiful, save some of the introduced species, such as sparrows and goldfinches, and these only at odd times; and sometimes, around the lighthouse on thick misty nights many hundreds of the various petrels can be secured.

The peculiar birds of New Zealand are strictly protected, and one's work is thereby much restricted, being limited mainly to observation and photography but having had the usual collector's luck, I have secured a few specimens by accident. Many birds have been killed or injured by dashing against the lighthouse panes at night, and a few have been found dead in the bush and on the beaches. Woodhens, (*genus Ocydromus*), have been captured in the fowlhouse, in the act of stealing the eggs.

The list of species observed during a period of over two years reaches a total of over sixty. The names here given are those of Sir D. L. Buller's "Supplement to the Birds of New Zealand," published 1905. The native name, if any, is also given. Measurements, where given, are in millimeters.

(1) *Thick-Billed Penguin*. (*Catarrhactes pachyrhynchus*). Tawhaki. This bird is sometimes referred to as the Crested Penguin, (*C. chrysocome*), but I have carefully gone over the description, and am certain that this is the same as Buller's type. The Crested Penguin proper is, if anything, slightly larger; the head and neck are much darker; and the feet are reddish brown. The feet in "*pachyrhynchus*" are dull bluish flesh color.

I have written so much about this particular bird and its nesting caves, that I hesitate to say more. I have observed the nesting for two seasons, and have by noting a few individual birds decided that they nest sometimes twice in a year.

(2) *Blue Penguin*. (*Eudyptula minor*). Korora. The nesting places of this species are not within easy reach of the homestead, and consequently I have been unable to secure eggs here. However, from observation at Taiaroa Head and other places. I may say that two eggs form the normal clutch. These measure 55x45, and are dull white in color. A bird was taken in June 1920. It had a curiously malformed bill, and is the subject of a special notice by Dr. Brooke-Nicholls in the "Emu."

(3). *Gannet* (*Sula serrator*). Takapu. Hutton and Drummond state that this bird is rarely seen south of Cook Strait, and breeds on Great Barrier Is., white Is. (Bay of Plenty), and Gannet Is. (off Kawhai). That it breeds also in this district I am now convinced, for I have this season observed a flock of eight young ones. The gannet in small numbers is permanently resident here, and several

can be seen nearly any morning passing round the lighthouse into the inlet. No eggs or specimens have been secured.

(4) *The White-throated Shag* or Cormorant. (*Phalacrocorax brevirostris*). Aroarotea. This species of shag is confined to New Zealand. It nests late in the season, December to January, and the nest is not built in trees as is commonly the case, but on the banks of a creek in this place,—Sealer's Creek. Several nests were found in a row, about a yard apart. In 1919 the colony was located too late to secure eggs, only young birds being seen. In 1920 I noted that four eggs formed a clutch. They are bluish white in colour, and measure 47 to 52x33 to 37. The nest is a large structure, formed of sticks and lined with grass and fern fronds.

(5) *The Spotted Shag*. (*P. punctatus*). Parekareka. This is the commonest shag to be observed in the district, but I have not yet found its nesting place.

(6) *The Little Black Shag*. (*P. sulcirostris*). Kawau. Only one specimen of this variety has been noted.

(7) *Southern Black-backed Gull*. (*Larus dominicanus*). Karoro. Egg, yellowish grey marked with grey, brown, and dark brown blotches. Size, (a) 70x47. (b) 73x51. The bird is not very common, and only odd nests are found. They are built of marine debris amongst the rocks and boulders on the shore.

(8) *Silver Gull* (*Larus scopulinus*). Akiaki. Moderately common and very tame, but does not breed in the near vicinity. Eggs have, however, been secured in the district. Size 48 to 52x35 to 38. Somewhat similar in color and marking to the last, but the blotches much smaller.

(9) *Southern Skua* or Sea Hawk. (*Megalestris antarctica*). Hakoakoa. Two or three are occasionally to be seen, and it breeds in the district, though I have not found its nest. I have seen eggs obtained here. Size, 73 to 78x52 to 57. Color brownish tinged unevenly with green.

(10) *White-fronted Tern*. (*Sterna frontalis*). Tara. Common at times, but very few appear to nest here. Only one nest has been found. It was on a high pillar of rock on Steep-to Island overlooking the water, and was just a slight natural hollow with a few leaves of the daisy tree scrub. The egg measures 47x34. The color is dull yellowish brown, heavily marked with fine black and dark brown dots and irregularly shaped spots.

(11) *Paradise Duck*. (*Casarca variegata*). Putangitangi. Only two pairs are to be regularly observed. They nest in August and September. An egg was found on the side of a creek to which they habitually resort. It is of a fine creamy color, and measures 68x48.

(12) *Grey Duck*. (*Anas superciliosa*). Parera. It is only seen very rarely near the sea coast, though it is said to be fairly plentiful in the upper reaches of the inlet.

(13) *Black Swan*. (*Chenopsis atrata*). An imported species. Small flocks, up to seven or eight, are sometimes seen flying past.

(14) *Reef or Blue Heron*. (*Demiegretta sacra*). Matuku. One pair residents, three others visitors. A nest is built of sticks and grass in a cleft of the rock in a bush clad spot. Four eggs are laid in a season. Color, very pale greenish blue. Size, (variable); of one, 48x34.

(15) *Little Bittern*. (*Ardetta pusilla*). Karourou. Only one has been observed here—standing in Sealer's Creek—during a period of over two years.

(16) *Black Oyster-Catcher* or Redbill. (*Haematopus unicolor*). Torea-pango. The commonest shore-bird. Resident. Eggs are laid amongst the shingle on the beaches without any attempt at nest-building. Three form the normal clutch. Color, greenish brown spotted with black and brown. Size 55 to 57x38 to 40.

(17) *Pied Oyster-Catcher*. (*H. longirostris*). Zorea. Only one observed, amongst a large flock of the black variety.

(18) *Swamp Hen*. (*Porphyrio melanotus*). Pukeko or Pukaki. This is the only one noted during the last 26 years, so I am informed by the 'oldest inhabitant.' This bird is comparatively common in some places.

(19) *Kingfisher*. (*Halcyon vagans*). Kotare. Flocks of both young and adults, from six to twelve, are seen at odd times during the autumn and winter. I have failed to find a nest.

Amongst casual oversea visitors, I have observed a few *Godwits*, (*Limosa novae-zealandiae*; Kuaka.); a single *Eastern Golden Plover* (*Charadrius dominicus*); half a dozen *Sandpipers* (*Heteropygia acuminata*; Kohutapu); and three *Australian Snipe* (*Gallinago australis*).

A fairly representative collection of petrels has been obtained by gathering those killed or injured by dashing against the lighthouse panes in thick misty weather. The most plentiful are the Diving Petrels and the Mutton birds. Apparently, petrels nest in the vicinity; but in my limited time I have so far found no nests or burrows. An egg was taken from a Mottled Petrel, injured by striking the lantern panes.

(20) *Broad-billed Dove Petrel*. (*Prion vittatus*). Parara. Very plentiful.

(21) *Bank's Dove Petrel*. (*P. banksi*). Rather uncommon.

(22) *Dove Petrel*. (*P. desolatus*). Whiroia. Common.

(23) *Diving Petrel*. (*Pelecanoides exsul*). Kuaka. Sometimes in thousands, but number 24 the more common.

(24) *Small Diving Petrel*. (*P. urinatrix*).

(25) *Allied Shearwater*. (*Puffinus assimilis*). Uncommon.

(26) *Mutton Bird* or Sombre Shearwater. (*P. griseus*). Titi. Plentiful, usually during the months of February, March, and April.

(27) *Cook's Petrel*. (*Oestrelata cooki*). Only two specimens secured.

(28) *Mottled Petrel*. (*Oes. gularis*). On Dec. 27th, 1920 a female was secured. The bird contained an egg just ready to be laid. Color, dead white. Size, 48x33.

(29) *Rain Bird*. (*Oes. inexpectata*). Only a few specimens.

(30) *Grey-backed Storm Petrel*. (*Garrodia nereis*). Rather uncommon.

(31) *White-faced Storm Petrel*. (*Pelagodroma marina*). Rare.

The land birds are only to be observed in very small numbers, but even so, many of them are of especial interest. Of the Woodhens or Wekas, of which I have kept many in captivity, I would like to say that I consider there are really only two species, and that the others, so-called, are only hybrids. Judging by the colors alone of these birds, one could pick a dozen species from a dozen skins, but as I have dealt more fully with this subject elsewhere, I will not go over the matter again. However, to follow the plan of these notes, I give the species, as given by Sir. W. L. Buller.

(32) *Brown Woodhen*. (*Ocydromus earli*). Weka. Two or three can usually be seen round about the homestead. Eggs laid in captivity measure 67 to 73-x43 to 47. The color is pale pinkish, sometimes white, with small irregular reddish and bluish dots.

(33) *South Island Woodhen*. (*O. australis*). Eggs similar to the above.

(34) *Buff Woodhen*. (*O. hectori*).

(35) *Black Woodhen*. (*O. brachypterus*). Eggs as above. A black specimen is, more often than not, mated to a lighter colored variety, and the offspring range in color from a dull sandy fawn with slightly darker markings, to almost jet black.

(36) *Mountain Parrot*. (*Nestor notabilis*). Kea. Only one has been noted. It was easily captured and caged, but did not live long. This appears to be the first record of this species so far south.

(37) *Brown Parrot*. (*N. meridionalis*). Kaka. Formerly very abundant, but now only a odd one is heard calling, or infrequently seen.

(38) *Parrakeel*. (*Cyanorhampus auriceps*). Kakariki. One pair and a single bird only.

(39) *New Zealand Owl*. (*Ninox novae-zealandae*). Ruru. Becoming very rare here. Only one is to be occasionally seen round about the lighthouse and the dwellings.

(40) *Bush Hawk*. (*Nesierax australis*). Karewarewa. A fine bird, but uncommon. A terror to the imported birds. Does not breed locally.

(41) *Harrier*. (*Circus gouldi*). Kaiaia, sometimes Kahu. Plentiful now and again, though sometimes not noted for several months, then upwards of a score will appear, stay a few days, and pass on.

(42) *Long-tailed Cuckoo*. (*Urodynamis taitensis*). Koheperoa. Arrives in Nov. or Dec., and leaves again before the following March. Some seasons plentiful, others absent. Eggs; size, 22.5x16.5. Color, brownish-olive with the ground color somewhat darker towards the larger end. Description of one egg taken from a Grey Warbler's (*Pseudogerygone flaviventris*) nest.

(43) *Bronze Cuckoo*. (*Chalcococcyx lucidus*). Pipiwharauroa. Time of arrival very variable—Nov., 1919; Jan., 1921. No arrival in 1920—so the bird was two months later in the latter season. Stays only a month or six weeks. Egg, 19x13.5. Color, an even brownish-olive.

(44) *Native Pigeon*. (*Hemiphaga novae-zealandiae*). Kereru. Odd ones to be observed all the year round but becomes more plentiful in March, April, and May. Does not nest in the near vicinity. Eggs seen on Coal Island. A rough unlined nest is built of fine twigs, and two eggs appear to be the usual number laid. They are pure white, and measure 46 to 48x33 to 35.

(45) *Parson Bird*. (*Prothemadera novae-zealandiae*). Tui. The large nest is built of very fine pliable twigs, and lined with fine grass. A nest usually contains five eggs. Eggs variable in color. White to pale pink with a few isolated pale brownish spots. Size 32 to 35x20.

(46) *Bell Bird*. (*Anthornis melanura*). Makamako. Only a few to be seen. The egg is white with faint reddish dots. Size 22x17.5.—One measured.

(47) "*Canary*" or *Yellowhead*. (*Clitonyx ochrocephala*). Popokatea. Formerly very common, but only two noted in the last two years.

(48) *Black Fantail*. (*Rhipidura fuliginosa*). Tiwakawaka. }

(49) *Pied Fantail*. (*R. flabellifera*). Piwakawaka. }

These two birds can hardly be considered separately, as they mate together. The young ones resemble either the one or the other parent. Sometimes a cup-shaped nest is built, but more often a domed one. Fine grasses, decayed leaves, fine fibrous roots, dead tow-like flax, and moss, are some of the materials used in building. The eggs are white with pale brownish spots at the larger end. Size, 17.5x12.5.

(50) *Yellow-breasted Tit*. (*Petroeca macrocephala*). Ngiru-ngiru. Very plentiful. The nesting season 1920-21 was very successful, mainly by reason of the spell of dry warm weather, which is so unusual here. A nest was only recently found in the roof of the oil-store. It was built of grass, and lined with a quantity of the small feathers of the domestic fowl. It contained one egg (four or five form the normal clutch) at the time of finding. This measured 18x13, and was white with a ring of blue grey spots round the larger end.

(51) *Rifleman*. (*Acanthidositta chloris*). Titi pounamu. The smallest of all New Zealand birds. Length, 76; wing, 44; bill, 12; tail, 19. Comparatively common. A large (for the size of the bird) domed nest is built, generally in a hollow tree, and four or five eggs are laid. These are white and measure 14x10.5.

(52) *Grey Warbler*. (*Pseudogerygone flaviventris*). Riro-riro. Not quite so common as the Tit. The nest is a hanging one, constructed largely of moss. Eggs, pure white, sometimes white with faint reddish spots. Size, 16.5x12.5.

(53) *Wax-eye* or *White-eye*. (*Zosterops caeruleascens*). Tauhou. Fairly common. Eggs, very pale blue. Size, 17x12.5.

(54) *Brown Creeper*. (*Certhiparus novae-zealandiae*). Pipirihika. These birds travel the bush in small flocks of from six up to a score, and nests are never very far apart. Nests built of moss and lined with a few feathers. Egg, white with dull greyish spots. Size 16.5x13.

(55) *Ground or Native Lark* or New Zealand Pipit. (*Anthus novae-zealandiae*). Pohoihoi. Rather uncommon. It has been replaced by the introduced Skylark. On account of the large numbers of imported weasels and stoats, a ground-nesting bird has no chance here.

Beside the birds native to New Zealand, I have observed the following imported species. Names according to "A Practical Handbook of British Birds," (Witherby and others 1919-20-21).

House Sparrow. *Passer d. domesticus*. Too common.
Hedge Sparrow. *Prunella modularis occidentalis*. Fairly plentiful.
Skylark. *Alauda a. arvensis*. Large flocks occasionally.
Goldfinch. *Carduelis c. britannica*. A welcome addition.
Chaffinch. *Fringilla c. coelebs*. Uncommon.
Greenfinch. *Chloris c. chloris*. Common enough to be a nuisance.
Bullfinch. *Pyrrhula p. pileata*. Only a few pairs.
Redpoll. (Lesser). *Carduelis l. cabaret*. Rather uncommon.
Yellow Bunting. *Emberiza c. citrinella*. Common.
Blackbird. *Turdus m. merula*. Not many.
Thrush. *Turdus philomelus clarkei*. A few resident.
Starling. *Sturnus v. vulgaris*. Large flocks at odd times.

THE BARNES CATALOG

A copy of the long-promised "Exchange Price List of North American Birds' Eggs" is at hand. The cover of this publication, which does duty, apparently, as a title page, reads as follows:

The American Oologists' Exchange Price List of North American Birds' Eggs 1922 (cut of egg) Compiled by A Committee of Twenty-five Prominent American Oologists Published by R. Magoon Barnes, Lacon, Ill., U. S. A.

In the years of preparation of this list we had supposed that officers of the "Committee of Twenty-five" were preparing the educational text as well as passing upon exchange values; but the editorship of the undertaking has passed, it seems, to R. Magoon Barnes; and apart from a brief statement by our Chairman, Dr. B. R. Bales, Mr. Barnes is responsible for the historical reviews and for the instructions to collectors. Mr. Barnes has also improved two opportunities to present various aspects of his institutional work at Lacon, Ill., including a half-tone of his handsome new museum building; so we presume it is fair to allude to this list henceforth as the Barnes Catalog.

So far as the work of the Committee of Twenty-five is concerned, there can be no doubt that our committeemen have achieved an eminently fair and authoritative listing of current exchange prices. The device of dividing the territory regionally, and then dividing the aggregate estimate of each species by the number of regions to obtain an average price, is probably as fair as anything which could have been agreed upon. That the general effect of this method has been to scale up eastern prices and to scale down the prices for western eggs, is manifest. How far the levelling up process has wrought injustice can only be determined by use. Speaking for the M. C. O., the writer elsewhere (See next article) challenges some of these valuations by offering to bid in local material at the figures named, in practically unlimited quantities. This method and this alone will test the sincerity of those who still think that western eggs are rated too highly.

If the committee has erred otherwise, it is perhaps through a certain timidity in assigning high valuations. A sort of low ceiling has been established, beyond which only a few prices have been allowed to project. Thus, there are quotations on 51 species whose eggs are rated at from \$20 to \$30, while only 13 species in the entire American List have been allowed to exceed \$30. This is conservative rather than encouraging.

We heartily commend Mr. Barnes's comments upon the relation of cash and exchange values of birds' eggs. The Committee has succeeded measurably well in establishing a norm of relative rarities, useful alike to those who would exchange or to those who would purchase; but it must be clearly understood that birds' eggs have no market value. "Selling" the old hound dog for one hundred dollars and taking pups in return at ten dollars each, may delight the dog fancier,

but such transactions do not pay any board bills. Wherefore, protectionists and others who would scent mischief in the very issuance of this "Price List," are specifically warned that this is a play, a pretty game among connoisseurs, and that neither the bulwarks of finance nor of conservation are being threatened thereby.

The Editor and the public, no less than the Committee itself, are to be congratulated upon having secured the services of Mr. W. E. Clyde Todd in proof-reading the text of the list proper. His work has been well done, and his accomplishment marks a pleasing contrast with the slovenly typography which has so long marred the "Oologist," and which leers at us elsewhere in the volume under consideration. That Mr. Barnes has neither time nor patience to proof-read his own text is no reason why he should leave the task to the office boy.

The equipment of half-tones, chiefly full page, which are designed to illustrate current practice in oology tell an eloquent and instructive story to those who are able to read. Illustrations of how not to do it are slightly in excess of those whose example may safely be followed. *Crowding* is the generic fault of most collections, and for this, in spite of the popular fallacy, there is no excuse. In the last analysis a man has no right to the possession of anything which he cannot or does not put to use. This axiom is especially patent where the article or material in question is in effect a gift of the body politic, a something handed over, or allowed to be appropriated, by the social whole. The privilege of collecting birds' eggs is such a social concession, and only those have a right to collect birds' eggs who have ability enough or taste enough or determination enough to put their acquisition in service.

Now while it is debatable how much service to science the average private collection may render, there can be no doubt that it owes an immediate service to beauty. The outstanding disgrace to "the profession" is not that the scattered grains of scientific truth are not gathered up—some competent person will attend to that, in time, if the material is well preserved—it is rather that much of the material acquired in the name of science is so wretchedly cared for, or if well preserved so far as physical conditions are concerned, it is still so tastelessly arranged that it has no appeal, no delight, no esthetic value. Some of these "model" exhibits of the Price List are perfect illustrations in point. They are examples of how *not* to arrange birds' eggs.

Personally, the writer has no use for any arrangement which erects little partitions between sets of birds' eggs; and he would urge the beauty of the group portrayal on page 33 of the "Price List" (albeit not ideally arranged), a group of sixteen sets of eggs of the Broad-winged Hawk, each spaced off tastefully from its fellows on a single unbroken expanse of cotton, as against that of the fenced-off sets on the opposite page (32), albeit they are very good of their kind. The everlasting subdivisions of trays, or partitions, or grooves, or what not, are everlastingly distracting. They are not in good taste.

But passing this, if you will, as a personal idiosyncrasy, cannot every one see that the uncrowded spaces of Mr. Jackson's Kite drawer (p. 35) or Mr. Carter's Shore-bird drawer (26), are infinitely to be preferred to the chaotic jam attributed to Dr. Perry (p. 29). And is Mr. Barnes so hard up for space that he has to crowd some 625 eggs of twelve species into one drawer, say a yard square (p. 21)? And he is proud of it—that is the point. These are model drawers!

Scarcely to be commended, either, is the bizarre practice of Mr. P. G. Howes of setting eggs in plaster and affixing them to the wall. Mr. Howes' skill is unquestionable, and his handiwork is exquisite; but for all that, one feels that these eggs are forever falling out of bed; and it gives—well, it gives one the colly-wobbles.

Not unnaturally, the question of nests is considered less important in the Exchange Price List. Nevertheless, the two examples allowed are exceedingly instructive. A drawer of 24 nests with eggs collected and arranged by Verdi Burtsch (p. 28) displays excellent taste. The nests are spread apart, and although the "setting" of some is scanty, there are others collected and preserved with

xquisite care. Compare this arrangement with the crowded atrocities figured on page 28, each nest characterless in itself, and each jammed into its neighbor as though trying to cover its shrinking bones. And this, forsooth, is called a "Method of Arrangement."

Well, we are indebted to Brother Barnes for instructive contrasts, and for some other things; and it needs no words of ours to enforce the lesson. Mr. Barnes has the *largest* private collection of American birds' eggs on earth. He admits it.

A CHALLENGE TO EXCHANGE MEN

We have, elsewhere, reviewed the Barnes Catalog, and have spoken favorably of the efforts of the Committee of Twenty-five in trying to establish fair prices for the exchange of birds' eggs. Nevertheless, we feel that many, if not most, of the eggs of western species have been under-priced. As evidence of our good faith, we will *accept in exchange* in practically unlimited quantities (that is, up to the requirements of really adequate series) eggs with nests (or, rarely, eggs alone) of the following Californian species, *at the Barnes quotations*; and we will guarantee satisfactory material in return:

Light-footed Rail	Anna Hummer (with choice nest)
Farallon Rail	Olive-sided Flycatcher
Wilson's Snipe	Any Steller Jay
Mountain Quail	California Jay (choice)
Plumed Quail	Santa Cruz Jay
Sierra Grouse	Western Meadowlark (choice)
Columbian Sharp-tailed Grouse	Arizona Hooded Oriole (choice with nest)
Sage Hen	Cal. Pine Grosbeak
Band-tailed Pigeon	Cal. Purple Finch
Western Goshawk	Gray-crowned Rosy Finch
Red-bellied Hawk	Pine Siskin
Golden Eagle	Belding's Sparrow
Spotted Owl	Any Sage Sparrow
Calif. Pygmy Owl	Stephen's Fox Sparrow
Calif. Cuckoo	Western Martin
Cabanis Woodpecker	Gray Vireo
Gairdner's Woodpecker	Dusky Warbler
Black Swift	Hermit Warbler
Vaux Swift	Sage Thrasher
White-throated Swift	Slender-billed Nuthatch
	Monterey Hermit Thrush

The following species, not Californian, we consider underpriced; and we offer, hereby, for unlimited quantities, *double* exchange value (i.e., double the rates quoted in the Barnes Catalog):

Yellow-billed Loon	Rivoli Hummer
Bonaparte's Gull	Couch's Kingbird
Aleutian Tern	San Lucas Flycatcher
White-winged Scoter	Florida Jay
Surf Scoter	Green Jay
Pink-footed Goose	Black-throated Sparrow
Cackling Goose	Texas Pyrrhuloxia
Whistling Swan	Grassquit
Jabiru	Black-whiskered Vireo
Franklin's Grouse	Yellow-green Vireo
Attwater's Prairie Chicken	Bahama Honey-eater
Lesser Prairie Chicken	Sennett's Warbler
Mangrove Cuckoo	Grinnell's Water Thrush
Maynard's Cuckoo	Pileolated Warbler
Chuck-will's Widow (choice)	Gray-cheeked Thrush
Any Poorwill	
Merrill's Parauque	

MUSEUM ACTIVITIES

Deferred Matters.—It goes without saying that the building and occupation of the Hazard Memorial has held the center of the stage ever since public announcement was made on the 2nd of February, 1922. Although the dedication exercises were held, very auspiciously, on the 17th of April, the building in its interior arrangements was far from complete, and the "Formal Opening" scheduled for a date early in May proved impossible of fulfilment. The oological clan, moreover, was too widely scattered by that time, as was to have been expected. With the exception, then, of this belated Journal, all formal and official matters, such as the Annual Meeting of Members, ratification of by-laws, etc., have had to be held over till another season.

The Formal Opening of the Hazard Memorial Building of the M. C. O. will be held some time next winter, possibly in connection with the Annual Meeting, which falls naturally on the 12th of March. The collections will be in thorough readiness for inspection at that time, and all interested in the science or "practice" of oology are urged to plan attendance.

The Comparative Oologist.—In spite of many brave promises; it has seemed best not to change the character or the name of the official "Journal" this year, nor to attempt the publication under a more pretentious title of what would necessarily be a more technical magazine. The truth of the matter is that the material offered us for publication has not been of the form nor in such quantity as would justify the launching of a new magazine. This is not a criticism of our contributors, some of whose generous and able reports of field work appear in these pages. It is a simple statement of fact. The technical reviews, the reports of expert investigation, the semi-philosophical discussions, which the importance of our subject warrants, hav'n't shown up yet. When a sufficient amount of first-line material does accumulate—and we hope that this may be at an early date—we shall assuredly publish as "*The Comparative Oologist*." We are unwilling, however, to pad out the columns of a new periodical either with editorial effusions or reportorial commonplace. In the meantime, therefore, we will continue to publish the "Journal," either as an annual or as a quarterly, as institutional convenience may require and as the generosity of contributors may permit.

Open to the Public.—The Museum of Comparative Oology opened its doors, informally, to the public on the 17th day of August, 1922, since which time there has been a steady influx of sight-seers, both travelling and local. The effect of the more favorable situation is immediately manifest, for the museum now has as many visitors in a month as it did in six at its former location. The more casual visitors, the "merely curious" are shown a stated round of representative drawers; but those who appear for the second or third time are led more deeply into the treasure-house of the institution. The attendants are always ready to present the deeper scientific meanings and values of the material shown, and it is very gratifying to see the character and frequency of intelligent response. Visitors whose eyes are apathetic or coldly tolerant before a mere array of pretties, parti-colored ovals, will rouse to animated (and often voluble) appreciation when some scientific induction is clearly pointed out. Recognition of the educational value of our institution far exceeds our earlier dream.

Personal Guidance is assured to all M. C. O. guests. Some visitors express disappointment that there is nothing on display which they can maul over for themselves. The oologist, of course, understands the exacting requirements which beset the maintenance of a collection of birds' eggs. They must be kept out of the light, except for momentary display; they must be guarded against dust and disarrangement, and from the all too willing familiarity of the inexperienced hand. All this means personal guidance of a most active type. But this, while it entails heavy duties upon the management, is most fortunate in the end. It ensures that the museum guests shall not only be well entertained, but instructed and interested as well. Prejudices are dispelled—the few who come to sniff remain to praise—and the casual patronage of the passer-by often becomes the intelligent appreciation of a sworn friend.

The inadequacy of the present Museum staff will soon be made manifest as the work of guiding visitors develops. No such problem has ever confronted a public museum before, for all that is usually required of an attendant is that he make himself as inconspicuous as possible, and that he simply keep an eye on the crowd. But in the M. C. O. it is different. Not over six or eight visitors can inspect a given drawer of eggs at one time. A sudden influx of visitors means the immediate enlistment of the entire personnel of the staff, or else inconvenient and unprofitable crowding. We wonder if there are not among the membership of the Museum of Comparative Oology a few, say two or three, who would enjoy this sort of thing, who would gladly volunteer for this very helpful and privileged service? We can easily picture some veteran oologist, able, affable, and possibly affluent, who would like nothing in the world better than to point out the beauties and meanings of birds' eggs to an appreciative and ever changing audience. Or we can as easily picture some ambitious youngster, whose folks might be willing to live in the most beautiful country on earth and who would love to saturate himself (or herself) in the atmosphere of natural science, and who as a means to that end might like to "try it out" on the public. We'll agree to check up on the statements of this hypothetically vivacious young person from time to time, and see that they square with the M. C. O. traditions. Who will be the first?

The installation of beach sand as a drawer lining is a tedious and somewhat exacting process; but it is being steadily carried out at the M. C. O. We are thoroughly satisfied with this mode, not alone for the support of the larger eggs but for the very tiniest as well; and we can glimpse the time when the antiquated "cotton bat" shall be banished from our halls. There can be no doubt that in a display collection the bedding of eggs in a smooth, level layer of fine gray beach sand is *ne plus ultra*. The eye thenceforth will never accept any other artifice.

The Galapagos Expedition.—"Expedition" sounds very pretentious for a young man who fares forth alone upon a scientific quest; but it may be allowed, in this instance, to cover the good wishes and prayers which went with him. As elsewhere related, William Oberlin Dawson caught a ride to the Galapagos Islands with the Jefferson Yacht "Invader," sailing in January. He arrived on Albemarle Island on the 12th of April, and put up at Villamil, a small Ecuadorian-Spanish fishing village on the southern end of the island. Here the young man obtained a good series of nests and eggs of several of the *Geospiza* finches; but he found the problem of local transportation insoluble, and reported in July that he would catch the first tramp steamer which offered transportation back to the mainland, where he expects to engage in agriculture or mining until such time as a power boat can be provided adequate to cover the demands of navigation throughout this difficult group. That the treacherous channels of the Galapagos are no place for picnickers is evidenced by a recent occurrence. At the time of young Dawson's arrival at Villamil, the Governor of the Galapagos, or "Archipiélago de Colon," Sr. Bolivar, resident on Chatham Island (San Christobal, *Espagnol*), was visiting the village in a good-sized sailing schooner, the only one owned upon the islands. Two days later "El Gobernador" set out with a party of fifty to return to Chatham; and two months later the Governor's son, worn with anxiety, managed to reach Villamil in an open boat to inquire what had become of his father and his men. *Quien sabe*. But the young oologist declares that he will solve the Galapagos problem if it takes him ten years.

The Field Season of 1922.—An M. C. O. field party of three members, augmented in June by some lay help, left Santa Barbara late in May for a two months' sojourn in the high Sierras. After some delay incident to late snows, headquarters were established at Mammoth, in southern Mono County, and work was conducted at various levels up to 12,000 feet. In spite of the late season, or perhaps because of it, everything seemed to break just right; and we returned July 19th from the most successful season in the history of the M. C. O. Save for the Yellow Rail, n/4, elsewhere reported, there were no startling discoveries; but really adequate series were obtained of such species as Gray Flycatcher (*Empidonax griseus*)—or at least of the desert breeding *Empidonax*;

Wilson Phalarope (*Steganopus tricolor*); Calliope Hummer (*Stellula calliope*); Green-tailed Towhee (*Oreospiza chlorura*); Audubon Warbler (*Dendroica auduboni*); Mono Fox Sparrow (*Passerella iliaca monoensis*); White-crowned Sparrow (*Zonotrichia leucophrys*); Western Ruby-crowned Kinglet (*Regulus calendula cineraceus*); Cassin Purple Finch (*Carpodacus cassinii*); and Sierra Hermit Thrush (*Hylocichla guttata sequoiensis*). Three sets taken of eggs of the Olive-backed Thrush (*Hylocichla ustulata swainsoni*) appear to establish the southernmost known breeding record of this subspecies; while a set of Western Evening Grosbeak, n/4, fresh, found by Robert Canterbury, provided a unique thrill for all the members of the expedition.

Gift of the Bowditch Memorial Collection.—Upon the death of Miss Charlotte Bowditch several years ago, a collection of skins of Santa Barbara birds, which she had been forming, devolved upon her heirs, the Misses Sophie and Margaret Baylor; and these ladies have very generously presented the collection to the Museum of Comparative Oology. The lot comprises some two hundred skins of local birds and a few sets of birds' eggs, all representing the craftsmanship of Mr. John Hooper Bowles, who was for some years resident in Santa Barbara, and who joins in the bestowal of the gift. This collection of bird skins will immediately be made available for public use, under judicious restrictions, and will form the nucleus of a local study series, intended to be thoroughly representative.

Completion of the Belcher Purchase.—Payment for the extensive Belcher collection of birds' eggs from Central and South Africa was completed this summer; and this handsome series becomes available for distribution under its respective group heads. Nothing finer has come to our cabinets than the marvelously varied assortment of Weaver-birds' eggs, *Ploceidae*, which this collection contains, although the series of Sunbirds' (*Nectariniidae*) is a close second. The M. C. O. now has representative material from each of the six continents, and the collections are beginning to take on a really cosmopolitan appearance.

WE ARE READY

The Director of The M. C. O.

With the completion of the Hazard Memorial Building the Museum of Comparative Oology enters upon the second stage of its corporate life. The promises made to the scientific world seven years ago, in the name of Santa Barbara, have been measurably redeemed. We have done our part—so manifestly, that we trust we may be pardoned for reminding the oological fraternity, and especially the Members of the M. C. O., of the tacit agreement under which we undertook the upbuilding of a cooperative institution devoted to birds' eggs. The Trustees of the M. C. O., backed by the community of Santa Barbara, agreed, in effect, that we would establish and maintain in perpetuity, under the most favorable conditions known to museum practice, a world repository of birds' eggs, available alike for inspection by the humblest student and for research, *provided* the oological scientists and collectors of the world would supply us with the material. We proposed, in fine, a reciprocal arrangement, a plan of cooperation by which the interests of Science and of this community would alike be served.

We acknowledge with appreciation and gratitude that many of the best collectors in the world have taken us at our word. You have endowed us richly with your oological substance; you have shared with us, most generously, the fresh fortunes of your field experience; and you have built your names, most enduringly, into the structure of our teeming cabinets. I think I may say, without fear of contradiction, that it was in view of this generous and spirited response from the four quarters of the globe that Mrs. Hazard felt justified in selecting this particular and fitting form for the memorialization of her husband's connection with Santa Barbara and of his interest in science.

Mrs. Hazard's generosity and faith have, in turn, challenged the intelligent cooperation of the oological world. Here is an opportunity, at last, to realize the things we have dreamed about, to execute the plans of cooperative study which we have dared to draw up, and, in short, to prove the claims which we have advanced in the name of Oology as a Science. We know that our friends, and especially our Members, will not fail us now. We have seven empty cases, an aggregate of 930 drawer feet, standing ready for occupancy. Others will be forthcoming just as fast as needed. *Henceforth we are prepared to install all offerings of first-class egg and nest material, however bulky, and from whatever quarter of the globe it comes.* (If desired we will remit the transportation costs of all parcels post shipments; and, upon due notification, we will accept freight—but *not* express—consignments, "charges collect").

It goes without saying that the value of all scientific material is in proportion to its completeness; that is, in proportion to its actually representative character. It is not enough to have one type of coloration present if a bird's eggs are known to have three types. It is not enough to have a ground nest if the bird who made it is known to nest also in trees. It is not enough to secure a single set to represent a genus of birds. The limits of individual variation, the range of the constructive genius, the authentic boundaries of a genus, are precisely the points under investigation. We must have more data, more nests, more eggs—ever more eggs—until little islands of completeness begin to emerge from the shallows of approximation. Then, and only then, shall we begin to realize the meaning of it all,—the interplay of life forces, the correlation of artifice and necessity, the struggles and gropings and dawns,—the emergence in time and infinite variety of that Creative Urge which has us all in its power—whose servants, or perchance, glad messengers and apostles, we are.

We are in receipt of a good many pleasant promises of cooperation and egg-sharing. Some of these have been delayed, through change of residence, crowding cares, deference to co-owners, etc., etc. Some have been delayed because of our own inattention, or preoccupation with the new building. Our compliments and regrets to all these waiting friends. And now may we be favored with whatever gifts and remembrances your courtesy intends. It will be especially fitting if we can realize upon all this good will and have time to arrange the material before the day of formal opening. It is our intention to afford the fullest recognition to all who so cooperate; and a complete list of Member contributions, and others, will be published, presumably about March 1st next.

The Museum staff of the M. C. O. is always glad to confer with any Members regarding plans for the coming season. Let us know what your special opportunities are going to be, and we can tell you what will count most in the upbuilding of our cooperative collections. The services of those who will undertake special commissions are greatly desired. Pending the day of our completer endowment, we cannot hope to share largely in the expenses of outside field work. Perhaps it would be fair to add, therefore, that those who subscribe to expeditions in the name of the M. C. O. will be entitled to double honor, as having borne the expense without sharing the fun.



WITH OUR MEMBERS

H. W. James, Esq., lately removed from Klipkraal, Tarkastad, to Cliff Royal, Somerset East, Cape Province, writes that the collecting season of 1921 was much delayed in the Craddock district by reason of protracted drought, six months in this instance. Whereas, the Hammerheads (*Scopus umbretta*) should bring off young early in September, Mr. James took eggs in October. The Passerine birds, also, were at least a month late. These droughts mean not only late nests but, usually, smaller clutches; and it is noteworthy that all exceptionally large clutches have been taken in seasons of heavy rainfall.

Instances of second occupation in the case of any Passerine nest are comparatively rare. Mr. James records a nest of *Prinia hypoxantha*, which was found near his house when it contained four full-fledged young. A few weeks later the same nest contained four newly hatched chicks; and the presumption is very strong that they were the offspring of the same pair of birds.

Mr. James's collection now contains examples of upwards of 700 species, chiefly South African. The collector plans to visit in the near future desirable sections of Africa now unrepresented in his cabinets.

Major C. R. S. Pitman, P. O. Hoey's Bridge, Trans Nzoia, Kenya Colony. A letter from Major Pitman, dated September 24th, 1921, although now nearly a year old, is so interesting that we venture to print it in full without permission.

Sept. 24, 1921.

My dear Dawson:

Your very welcome letter of 9th July arrived here last mail and I hasten to reply, and also will try and give you a brief account of my stewardship during the last six months. Little did you realize when you wrote your letter on the 9th, that it was just a toss-up a few hours later whether I departed this life or not! On the 10th of July I was out after African Buffalo with a friend—and we knocked over a couple of bulls out of a herd of 20 to 30 animals, and had to follow one of the animals into the forest. You probably know what a cunning and terribly dangerous brute the African Buffalo is, and when wounded he is 1,000 per cent worse! He was very badly hit and for the first four or five miles the going was down hill, and the cover, except in a few places, was not very thick, and the beast had no chance of standing and attempting a charge. Just after midday we found ourselves at the bottom of the steep forest-covered valley—and the old "buff" had made three attempts before he could get up the steep, slippery hill-slope the other side. What a chance of putting a bullet into him when absolutely at our mercy! We must have missed by a few minutes. The cover was a bit thicker on the other side, and we knew he would be waiting for us not far up the hill. He was too hard pressed to tear his way through the cover, and was following a small track. I was leading and was going to make a detour into the cover to avoid a corner in the path, when I heard the brute snort just ahead. My native gun-bearer, instead of bolting, as usually happens in such cases, had the suicidal curiosity to get in front of me, pop his head round the corner and give the bull the glimpse of his enemies that he required. Down he came with a crash, and the man being between me and the "buff" I could not fire. He escaped, of course, and I had to pay the piper. I tried to dodge the infuriated brute, but he crashed into me, knocking me onto my face, and then started to kneel on me! I really thought my last minute had come—and it was curious waiting—to pass into the great unknown and to know what it would be like. Probably the beasts wounded shoulder prevented his coming down on me properly and kneading me into jelly, for he got off me and then began to butt me furiously with the hard, horny boss on his forehead. After that, having ground my face into the soft soil and filled my mouth with dirt, he half turned me on to my back and proceeded to rip the clothes off me with a sideways motion of his horns. He tore to ribbons a thick serge coat, flannel shirt and vest, and just lightly scored my chest with his horns, but did no real damage. I then had another turn of butting on my back, etc., and heartily wished he would either finish

his rotten job or clear off altogether. A final smashing blow, and with a quick sideways dig of his horns he speared my right thigh and buttock and tossed me several yards. As I came to ground my friend fired, and the bull, desperately hit, once more staggered off and plunged down into the deep ravine, out of which he was powerless to get. That final toss did most of the damage; but although the thigh wound exposed and bruised the muscles, luckily none were torn. That I am alive at all today is an absolute miracle and not only so, but I am neither disabled nor crippled, and two months after the incident am running about as hale and hearty as ever, and chasing the wild game as before. I was in hospital six weeks, and the doctor has made a splendid job of me, putting bones back into position, stitching me up and generally patching and mending me. The sum total of the main injuries, all of which were on the right side, were: dislocated shoulder and collar bone; fractured lower ribs, thigh laid open down to muscles from behind knee to buttock; buttock badly and deeply ripped by horn. Well, all's well that ends well; and next time I'll take care to smash the brute right over before he can get away.

I am awfully sorry indeed to hear about the sad happening which has delayed the issue of more parts of "The Birds of California."

You ask me what I am doing out here. Well, I am a settler in partnership with several officers of my regiment, and we have several thousands of acres of farms and are trying to make a living out of growing flax, mealies and coffee. As the first few years of pioneer farming are always lean years, I am trying to obtain a little extra cash by collecting small mammals, butterflies, or bird skins, for any one who will purchase the same at a reasonable price. I have had a good deal of experience at such work, and the British Museum have always given me good reports of contributions I have made to them from time to time. With regard to your institution—all eggs and nests and parent birds I happen to send along to you are, of course, my contribution to you—but if you also want a supply of bird skins on purchase, I'll do the best I can for you. At Nakuru where all is open, settled for years, and cultivation everywhere—weaver finches are common. In these parts, I regret to say, we have none! From May till nearly the end of the year the grass everywhere is at least five feet high and often over our heads—and the cover, on account of nettles, high cutting grasses, etc., is very difficult to reach. I don't suppose any part of the world offers such difficulties to the oologist. Settled places like Entebbe, Nairobi, etc., are far better for nesting than the "back of beyond"! As I have to get acquainted with breeding seasons, etc., I am much handicapped, but have discovered the nesting haunts of the *Cisticola* Warblers, though, I fear, too late. However, I am collecting you a series of nests and typical sites with some parent birds.

(Signed) C. R. S. P.

A more formal report from Major Pitman, covering the operations of his first six months in British East Africa, must, regrettably, be condensed.

It is difficult to make generalizations regarding the breeding seasons of East African birds, because of differences due to altitude. Many tropical species breed throughout the year. This lack of seasonal definiteness is most manifest at the lower levels along the coast and in the Lake Victoria section, while the upland nesting is likely to be more sharply constricted. In general, however, "the season" extends from July to December. In the Trans-nzoia section, where Mr. Pitman is located, at a point about sixty miles east of Mount Elgon, the rains last from May till October. Ground-nesting birds, such as Nightjar, must nest early, before the grass has grown out of bounds. Bustards are found in this section, especially the Black-bellied Bustard (*Otis melanogaster*) and Francolins, in bewildering variety. A mere hint of the richness and variety of the smaller birds is afforded by the fact that the convalescent buffalo-hunter watched a Long-tailed Green Sunbird (*Nectarinea kilimensis*) from the hospital window at Eldoret, as it flashed in and out intent upon the construction of its nest. No doubt this

exhibit now adorns the Pitman collection; but the Major is not content with small fry, however beautiful, for he has an eye on several old nests of the Augur Buzzard (*Buteo augur*) and the intrepid Bateleur Eagle (*Helotarsus ecaudatus*).

R. E. Symons, Esq., Shafton House, P. O. Shafton Grange, Howick, Natal, South Africa. Under date of December 21, 1921, Mr. Symons writes: "We are in the middle of our collecting season now, and I have purposely put off sending anything until I should have a better variety to select from. In the next consignment I propose putting in two sets of *Theristicus hagedash* and six sets of *Spreo bicolor*; and I hope also to be able to let you have a set of *Centropus burchelli*, and any other cuckoos I may have.

"It may interest you to hear that I have this season taken two sets of *Centropus burchelli*. This bird is, of course, not of parasitic habits, but builds instead quite a useful dome-shaped nest of grass, generally in a thick shrub or in the coarse grass lining the bends of a river or stream. I may be able to get you a nest x x . In this district we have also *Cuculus solitarius*, *Chrysococcyx cupreus*, and *Metalococcyx smaragdineus*; also *Cuculus gularis*, the latter being rare. I have on two occasions taken a pure white egg from nests of *Spreo bicolor*, and am inclined to think that they were laid by *Cuculus gularis*.

"One of my best finds this season is a set of *Bycanistes buccinator* (Trumpeter Hornbill). This bird, as you no doubt know, nests in a hole in a tree, and when the breeding season approaches, the female is enclosed in the nest; the male closes up the entrance until only a small aperture remains, through which he feeds his unfortunate mate, and there she remains until the eggs are laid and hatched. I took my eggs in October, and had some difficulty in breaking away the plaster at the entrance, and after taking the eggs I left the female in the nest. A few weeks later I paid another visit to the place and found that the female had again been closed in and had deposited another set of eggs, which I had not the heart to deprive her of.

"Another valuable find was a nest of *Bugeranus carunculatus* (Wattled Crane) with one egg, incubation just starting. This is another of our most interesting birds, and I am very pleased to say they often nest on my farm, although I am not always successful in locating the nest. They build their nest in the middle of a swamp, or "pan," and they pile up a heap of grass roots and tufts until an island is formed, in about a foot of water, all the grass growing in the swamp in the vicinity of the nest being pulled up and deposited upon it."

B. A. Fernandes, Esq., 2, New Cantwadi, Bandra, Bombay. In sending us a handsome offering of cuckoos' eggs, with their fosterers, Mr. Fernandes makes the following comment on an egg of the Pied-crested Cuckoo, *Coccyzus jacobinus*: "This egg was found in the nest of the Red-whiskered Bulbul, *Otocompsa emeria*. Although I have taken many examples of this parasite in the past, they were invariably found in the nest of one of the Babblers (as, for example, *Crateropus canorus* or *C. striatus*—Ed.) This is the first time I have taken it in the Bulbul's nest. I notice that neither Hume nor Mr. Stuart Baker mentions the Bulbul as among the victims of this Cuckoo. There is absolutely no doubt as to the identity of the egg, as the clutch was personally taken; and, moreover, I had ample opportunity to observe both birds."

The eggs in question, two of the Bulbul and one of the Cuckoo, repose in an elegant nest of the former species; and a contrast could hardly be more emphatic than that between the pure Niagara green of the Cuckoo's eggs and the white with dashing red spots and blotches of the Bulbul's eggs. This was doubtless a case of "any port in a storm," as Mr. Edgar P. Chance has so clearly pointed out in connection with his studies of *Cuculus canorus*. Some accident having befallen the Babbler's nest which the Pied-crested intended to lay in, and whose egg her own exactly resembles, she was ready to drop it anywhere, on the slenderest hope of its passing unchallenged.

Rev. Harry R. Caldwell, lately of Yenping City, Fuhkien, China. It is with mingled pleasure and regret that we note the return of this able and energetic

missionary-ologist to America. Overwork and the unsanitary conditions of the Orient have again necessitated his heaving to for repairs and at last accounts our friend was being overhauled at the famous repair shops kept by the Mayos at Rochester, Minn. Mrs. Caldwell and the children are in Seattle, whither Mr. Caldwell hopes soon to return; and he will probably fill out the year on the Pacific Coast with field service on behalf of the Missionary Board of the Methodist Episcopal Church. Mr. Caldwell assures us that he will pay an early visit to the M. C. O., where so many of his treasures await his inspection.

Owing to ill health Mr. Caldwell was not able to do much with bird-nesting last spring, although he has sent us some two hundred choice bird-skins.

Major W. Maitland Congreve, Hafod, Trefnant, N. Wales, wrote us a cheerful letter under date of August 4th immediately upon his return from Spitzbergen. Messrs. Jourdain and Tucker were the other members of the party and the expedition should have been a great success; but owing to vexatious delay in Norway the party arrived upon the collecting ground fully two weeks too late. While there were unexampled opportunities for getting "downies," the saving of eggs was mostly a matter of caustic potash and a surgeon's kit. However, of the chief desideratum, Barnacle Goose (*Branta bernicla*), four sets were secured, c/6, c/5, c/4, and c/3, the 8th to 11th, respectively, known to science.

Just as the party was getting ready to realize extensively on eggs of the Large-billed Puffin (*Fraterculus arctica naumanni*) their motor boat burned up and they were obliged to return immediately. Evidently, the gods of the "Pointed Peaks" are not very friendly to egg collectors!

Cyril Hopwood, Esq., sends word from Rangoon, Burma, under date of August 11, 1922, that he is retiring from the Forest Service, in which he has been engaged for nearly twenty years, and is leaving Burma for England where his address will be c/o Messrs. Thos. Cook & Son, Ludgate Circus, London. Mr. Hopwood has been an ardent collector for many years past, and the accumulations of Burmese material, which he is bringing home, will doubtless occupy his leisure hours for a long time. Whether or not Mr. Hopwood's hard luck the past season had anything to do with his decision to return to England, the editor will not undertake to say, but his letter continues:

"I got a short holiday to the hills this year, but very late in the season; and for almost the first time my luck was dead out and I got nothing—not a single cuckoo at Maymyo, though I had never before failed to find one or two during the season. Whether it is due to the extensive clearing that has been done in the vicinity of Maymyo, which has resulted in opening the country out very considerably, I cannot say, but the fact remains that the destruction of small birds' nests is very much greater than it used to be. This destruction I do not attribute to human agency, as the sentiment in Maymyo is strongly in favor of bird protection, and nobody takes eggs, with the exception of one or two scientific collectors. But Maymyo swarms with crows, tree-pies, and jays, and I have abundant proof that the crows and tree-pies are most persistent nest robbers, and I am inclined to think that the opening up of the country surrounding the station has made it much easier for these pirates to find and destroy nests of the small birds."

A most interesting letter from *T. Marlow, Esq.*, Tharrawaddy, Burma, under date of July 13, 1922, advises that he has been delegated by the Forest Service to study logging methods in the western United States, and that he will visit us early next year. This is splendid news, for we are eager to give account of our stewardship to the Members in Burma, who have been among our most loyal supporters. Mr. Marlow is the fortunate discoverer of the first authenticated nest of that eccentric species *Heliopais personata*, and he has promised, in addition to a full account of the breeding habits of this illustrious bird, to bring us the type set, n/7, for presentation to the M. C. O. Wouldn't that melt the heart of the most savage host!

J. M. D. Mackenzie, Esq., also of the Forest Service, Burma, has been home on leave of absence in connection with the fulfilment of life's pleasantest

duty. Mrs. Mackenzie evidently regards her husband's hobby with indulgence, for he has been writing us charming and enthusiastic letters on oological subjects, and is despatching a splendid contribution to the M. C. O. cabinets. Mr. and Mrs. Mackenzie are returning to Burma in November.

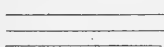
Rowland H. Archer, Esq., Ryecroft, Lyndhurst, Victoria, Australia, is one of the staunchest friends of the M. C. O., although his unconquerable modesty forbids our enumerating his many gifts. We are beholden to him for some of the choicest numbers in our collection, especially of some of the rarer sea-birds. The latest adventure to which he has confessed is climbing 136 feet up in a brown-topped eucalyptus tree to retrieve a set of Sparrow Hawks (*Accipiter cirrhocephalus*) eggs—only two, much to the climber's disgust. That's 68 feet per egg, remember. But we have an added respect for Mr. Archer, as for any man who will do his own climbing.

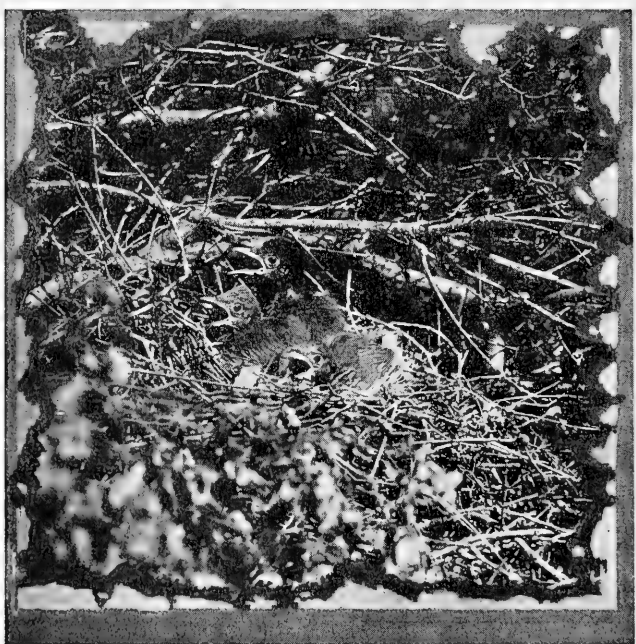
R. S. Sutherland, Esq., F. Z. S., has recently been transferred from Puysegur Point, Invercargill, New Zealand, to the Lighthouse, Cape Foulwind, Westport, N. Z. We shall miss his sprightly accounts of happenings at Puysegur Point, especially of nesting Penguins; but we shall hope that Cape Foulwind yields treasures of its own.

A. W. Johnson, Esq., of Iquique, Chile, in a most interesting letter, dated Feb. 10th, recalls the fact that he was born in Lake County, California, where his father, having retired from business, devoted himself to the acquisition of a collection (One of the world's best.—Ed.) of Golden Eagles' eggs. Mr. Johnson has lived for the past ten years in northern Chile, where he is devoting himself to the development of the nitrate industry. He finds the nitrate country one of the most desolate places imaginable from the ornithological viewpoint; but since removing to Iquique has had better fortune with the sea-birds, and has succeeded in identifying forty-four species—among them the Giant Petrel (*Ossifraga gigantea*); two species of Cormorants, a Gannet, Molina's Pelican (*Pelecanus thagus*), a Penguin (*Spheniscus humboldti*), and an Oyster-catcher, probably *Haematopus ater*. Concerning the Penguins Mr. Johnson reports:

"These birds nest in colonies of from 50 to 100 pairs, choosing for the purpose spacious sea caves, always difficult of access. The floor of the cave is composed of rounded pebbles and stones, so thickly covered over with a thick, slimy, greasy mud that it is only with the greatest difficulty that one can keep his feet. The eggs are dotted all over the floor (nearly always two in number, but occasionally only one), sometimes almost completely buried in slime. They are large, white in color, sometimes with a faint suggestion of pale blue. Two broods are hatched in the year, one in July, the other in October. When first hatched the young are quite helpless, but grow rapidly in size; they are covered with a thick down which gives place to feathers only very gradually. Contrary to what we might expect, the young show no inclination to enter the water, and do so only when practically all the down has been shed. In October many of the July brood may still be observed in the caves.

"These Penguins make most interesting pets, becoming very tame and following one about like a dog. They are fearful gluttons, and will stuff themselves with fish until they can hardly move. I once gave a tame Penguin ten eight-inch fish, one after the other, and he only stopped asking for more when the tail of the last fish was hanging out of his mouth."





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That the scientific support of this institution already musters the widest, the most gifted, and the most representative clientele which ever set before itself the accomplishment of a specific task in museum building;

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That cooperation *can* accomplish any task to which it sets its hand;

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What is the value of an institution except as a concrete invitation to the like-minded to participate, to enjoy, to profit—and to hold fellowship?

If this effort appeals to you, you are invited to join; to contribute eggs (and especially nests-with-eggs), either from your current field take, or from accumulated stores; to keep us advised of your activities, both afield and in the cabinet room; to contribute articles for publication; to represent the just claims of the institution upon public tolerance; and to identify yourself with any or all of its varied research activities.

THE BIRDS OF CALIFORNIA

By WILLIAM LEON DAWSON, A. M.

Author of "The Birds of Ohio" and "The Birds of Washington"

WITH THE CO-OPERATION OF

THE COOPER ORNITHOLOGICAL CLUB

STUDENTS' EDITION

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Author of "The Birds of Ohio" and "The Birds of Washington"

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